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ORIGINAL ARTICLES.

A CASE OF SUTURE OF A STAB-WOUND OF THE HEART, WITH REMARKS ON, AND A TABLE OF, CASES PREVIOUSLY REPORTED.

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C. W.; aged twenty-three years, male, negro, was stabbed in the evening of October 2, 1901. On examination about half or three-quarters of an hour later the patient was unconscious, but extremely restless, tossing about and talking incoherently. The extremities were cold and no pulse was perceptible in the radials. A clean-cut wound was seen in the chest, 5 cm. long, extending downward and slightly outward and completely dividing the left fifth costal cartilage close to the sternum. The wound gaped so that the pericardium could be seen.

Preparation was made for immediate operation. The chest-wall was hurriedly washed off with a solution of bichloride and enough ether was given to quiet the patient's struggles. The external wound was extended longitudinally above and below, making the total length 15 cm., the outer flap was dissected back exposing the ribs, the costal cartilage of the fourth rib was divided and the fourth and fifth ribs were divided with bone forceps about 7 cm. from the sternum. The muscles of the fifth intercostal space were then divided and the flap of the chest-wall turned up, clearly exposing the pericardium and left pleural cavity. An opening about 5 cm. in length was seen in the pericardium and was enlarged below to 7½ cm., revealing an opening in the wall of the left ventricle close to the interventricular septum, from which the blood spurted with each contraction of the heart. The edges were quickly pressed together and held so by a pair of hemostats grasping each edge until the wound was closed by a continuous suture of silk in a curved needle, making seven stitches which did not include the endocardium. The wound in the heart was 2½ cm. long and shaped like the letter "Y" with the right branch about half the length of the left. The pericardium and pleural cavities were then emptied of blood and clots, of which there must have been at least 2,000 c.c., and the pericardium closed with continuous silk sutures. About this time the heart stopped and neither artificial respiration nor squeezing the heart was able to start it again. The operation lasted less than fifteen minutes. Death was caused by hemorrhage. There was not time to inject salt solution into the veins, though this was intended, as the most important indication was to stop the hemorrhage and all efforts were devoted to that end.

To the cases reported in the excellent article by L. L. Hill, "Wounds of the Heart, a Report of Seventeen Cases of Heart Suture."[1] I have added my case and 8 others and have arranged them in tabular form, giving, as far as the information could be obtained from the reports, the name of the operator, year of the operation or report, the situation of the external wound, the chamber of the heart wounded, size of wound in the heart, time of operation after injury, whether anesthesia was used, result, and remarks.

A study of these 26 cases sutured gives the following results: Recoveries, 9; deaths, 17; mortality, 65.38 per cent. Of the chambers wounded, the left auricle, 1; left ventricle, 12; right ventricle, 8; not given, 5.

From this it would seem that the ventricles are far more likely to be wounded than the auricles, in the proportion of at least 75 per cent., and that the left ventricle is most frequently wounded of all the chambers. Of those who recovered 2 were wounded in the right ventricle and 7 in the left ventricle (including the apex), 2 possibly non-penetrating and 1 in the apex certainly non-penetrating.

Mortality.—If we subtract from the recoveries the 3 cases in one of which the cavity was certainly not opened and the other 2 in which the cavity was probably not opened—if so, the opening must have been very small—we find the mortality of *penetrating wounds* of the heart as shown by this table to be 76.93 per cent.

Time of Operation after Injury in Relation to Prognosis.—If we study the time which elapsed after the receipt of the wound before the operation we will be struck with the difference in the fatal and non-fatal cases; thus in the former the minimum time was "immediately" and the maximum one and one-half hours, time not given in 10 cases, while of recoveries the minimum time was five hours and the maximum over twenty-four hours—time not given in 3 cases. The obvious inference is that if the patient lives after receiving the wound five hours or longer before the operation, his chances of recovery are much better than many operated sooner, as the fact of living five hours without operation proves the wound to be less than the average in severity.

Dangers.—Without doubt the greatest immediate danger is from hemorrhage, next from shock and entrance of air into the heart. Then comes the danger from pericarditis, empyema and pneumonia. Of the 26 cases, 1 had pericarditis; 2 empyema; 2 empyema and pericardi-

[1] Med. Rec., Dec. 15, 1900.

CASES OF SUTURES OF WOUNDS OF THE HEART.

Operator and Year.	Location of External Wound.	Chamber Wounded and Size of Wound.	Time of Operation after Injury.	Anesthetic.	Results and Remarks.
1. Farina. 1896	Just above the margin of the left 6th rib, near the sternum.	R. V. ¼-inch. 3 stitches.	.....	.....	D. 6th day. Death from bronchopneumonia.
2. Cappelen. 1896	4th left intercostal space in mid-axillary line.	L. V. 4-5-inch.	1 hour.	.....	D. after several days. Death from pericarditis. Branch coronary artery cut.
3. Rehn. 1896	4th left intercostal space near sternum.	R. V. 3 stitches.	Following evening.	.....	R Empyema.
4. Parozzani. 1897	7th left intercostal space, mid-axillary line.	L. V. ¾-inch.	5 hours.	None.	R.
5. Parozzani.	3d left intercostal space.	L. V. 3-5-inch.	½ hour.	None.	D. Death on second day from anemia (?). Interventricular septum had been cut.
6. Fummi. 1898	Under left nipple.	Apex. Cavity not opened, 1 stitch.	Several hours.	.....	R. Empyema.
7. Ninni. 1898	5th left intercostal space.	L. V. 3 stitches.	Quickly.	None.	D. Death on table.
8. Parlavecchio. 1898	5th left intercostal space.	L. V. 1½-inch, apex.	8 hours.	Chloroform.	R.
9. Giordano. 1898	2d left intercostal space.	L. A. 4-5-inch. 4 stitches.	½ hour.	None.	D. Death on 19th day from empyema; abscesses right lung.
10. Nicolai. 1899	4th left intercostal space, midway between margin of sternum and nipple.	R. V.	1½ hours.	Yes.	D. Death after 12 hours.
11. Tuzzi	4th left intercostal space.	2 wounds; 1 non-penetrating.	.....	None.	D. Death on 22d day from empyema. Pericarditis.
12. Longo	5th intercostal space (left). 2-5 inch internal to nipple.	L. V. 3 stitches.	At once.	None.	D. Death in 15 minutes.
13. Ramoni	At 3d left cartilage, 4-5 inch from sternum.	R. V. 2 wounds; 1 non-penetrating. 4 stitches.	.....	None.	R.
14. Marion. 1899	Shot through breast.	Sutures.	.....	.....	D.
15. Rosa. 1899	5th intercostal space.	L. V. 3-5-inch. Not certain it penatrated ventricle.	.....	None.	R.
16. Horodynski. 1899	.....	R. V. 1½ c.m. long.	.....	.....	D.
17. Maliszewski. 1899	.....	.....	.....	.....	D.
18. Maliszewski. 1899	.....	.....	.....	.....	D.
19. Bufnoir. 1899	6th left intercostal space.	R. V. Gunshot. .22-calibre.	.....	.....	D. Necropsy showed perforation of ventricle and the anterior opening only had been sutured.
20. Pagenstecher. 1899	4th left intercostal space beneath the nipple.	L. V. Near apex; 2 stitches.	16 hours.	None.	R.
21. Nanu. 1900	3d intercostal space, 4 c.m. from edge of sternum.	R. V. 2 c.m. long. 2 interrupted sutures.	.....	.....	D. on 5th day from infection of pericardium and pleura.
22. Maselli. 1900	Below and internal to left nipple, cutting 6th rib.	L. V. Near apex. 2 stitches.	1½ hours.	.....	D. in 12 hours.
23. Fontan. 1900	Six wounds with scissors between 3d and 7th ribs in cardiac region.	L. V, 12 m.m. long. Continuous catgut sutures. 3 stitches.	6 hours.	Chloroform.	R.
24. Nietert. 1901	.....	R. V. penetrated; 3 silk sutures.	.....	.....	D. after 36 hours.
25. Vaughan. 1901	5th left costal cartilage divided.	L. V. 2½ c.m. long. Continuous silk sutures. 7 stitches.	¾ hour.	Ether.	D. on table from hemorrhage about completion of operation.
26. Nietert. 1901	Left of sternum.	L. V. Not sure cavity was penetrated; 2 sutures.	.....	.....	R.

tis; 1 empyema and abscess of right lung, and 1 bronchopneumonia—7 cases with infection, all of which were fatal except the 2 cases of empyema only.

The urgency of the symptoms and the necessity for prompt and rapid action often prevent the observance of proper aseptic precautions—a fact which probably accounts for the frequency of infection.

Conclusions.—A review of these cases justifies the following conclusions:

1. The time has arrived when a wound of the heart should be operated on with as little hesitation as a wound of the brain, with the expectation under corresponding conditions of getting equally good results. The mortality must inevitably be high—not from the operation but from the injury—especially if all cases including desperate ones be undertaken. Selection of cases who have survived five or more hours after receiving the wound would give a good percentage of recoveries, but such selection is not to be recommended.

2. In all cases of wounds in the region of the heart, with symptoms threatening life, an exploratory operation should be done by making an osteoplastic flap by dividing the fourth and fifth costal cartilages at their attachments to the sternum and the ribs about one inch external to their attachment to the cartilage, somewhat according to the method of Roberts. This flap turned up as a door on a hinge gives a good view of the pericardium and can easily be enlarged upward if more room is required.

3. While early and speedy operation is often essential to success, yet the importance of asepsis cannot be too strongly emphasized on account of the great danger of pericarditis and empyema. If there has been much hemorrhage a quantity of physiological salt solution, approximately equal in amount to the blood lost, should be injected into a vein while the surgeon is operating on the heart, if it has not been done sooner.

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WHEN AND HOW TO INTRODUCE THE STOMACH-TUBE.

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IN affections of the stomach the obtaining and examining of the contents of the stomach is the *sine qua non*. No matter how large our experience is, the microscopical and chemical examination of the stomach-contents is absolutely necessary for a correct diagnosis and a negative result of our efforts is as valuable as a positive one. And let me say here, in parenthesis, anticipating my reports on the subject, that the microscopical examination of the test-meal is at least just as important as the chemical one, if not superseding it. We may well understand the condition of the consulting patient and probably our errors as to quality may diminish with our experience, yet quantity cannot be imagined. To be clearer, we may well and correctly adjudge all symptoms complained of as ascribable to a condition of hypochlorhydria, yet how far this condition has gone cannot be estimated; therefore to satisfy both patients and ourselves, a quantitative analysis must be made.

Recognizing the necessity for examining the stomach-contents, the question arises, Are there any objections and contra-indications to the use of the tube, and, further, how are we to introduce it? Objections and contra-indications to the use of the stomach-tube are given in the text-books, almost anything being considered a check—diseases of the heart, diseases of the lungs, diseases of the aorta, general diseases, pregnancy, etc. Why? This is not explained. Why should a soft-rubber tube not be allowed to pass the esophagus, while a bit of bread, with its ragged and pointed ends, is granted this precious privilege?

Objections to its entering the gullet might be raised on three points: (1) because of its producing pressure; (2) because of its diameter, and (3) because of possible injury to the soft parts. Can any one imagine a soft, readily-yielding rubber tube being guilty of such a heinous crime? Do we not know from our successful experience with the soft-rubber tube in other parts of the body that the very reason for using soft-rubber tubing is that it has been convincingly demonstrating itself inoffensive and incapable of causing physical injury? The very reason for using soft-rubber tubing is because it readily and meekly adapts itself to its surroundings, flattening itself whenever other progress is impossible, taking—possibly involuntarily—the only course open to it, twisting and turning whenever demed wise to reach its destination and stops short only when further progress is absolutely barred—qualifications and virtues that many of us might emulate with profit.

It seems to me, after quite a large experience, that when there are no strictures anywhere between the mouth and past the cardia there are no objections or contra-indications to the introducing of the soft-rubber stomach-tube; in order to determine the existence of a stricture the invasion of the esophagus is absolutely essential. Ulcus œsophagi, a disease which, by the way, exists quite frequently, might contra-indicate the introduction of the tube, but not because the tube might penetrate, but because of its gliding over the raw and highly-sensitive spot. All objections and contra-indications stated, except those just now mentioned, are theoretical. The vitality of the patient can in no way suffer if the tube is introduced skilfully and by means of the stomach-tube director invented by myself, rapidity and safety, even by a novice can easily be acquired. I have introduced the stomach-tube with decided benefit

even in the last stages of tuberculosis, nay, even in the much-dreaded ulcer of the stomach and in advanced heart disease. Boas reports (cited by Hemmeter) having introduced the tube with success in cases of pregnancy, typhoid fever, and aortic regurgitation, with favorable results. Why should a soft-rubber tube be harmful? It certainly cannot cut nor cause any abrasions and if not introduced into the larynx, a feat sometimes accomplished, the tube, if not hard—and this it should never be—will readily yield to any pressure that any nearby tumor, aneurism not excepted, might cause. There are some men who, do what they may, cannot introduce the tube. But such men, unskilful in the handling of the tube although otherwise very creditable to our profession, should simply abstain from this practice, unless with the aid of my director. As a general rule, I might state that so long as the patient can swallow hard substances, such as meat and bread, without inconvenience there exists no contraindication to the introduction of the tube.

The stomach-tube must be of soft rubber. If the regulation stomach-tube is not at hand any soft-rubber tubing of proper diameter and length may be used. One can make his own stomach-tube from ordinary soft-rubber tubing by cutting off the desired length, cutting the holes that he desires, smoothening the holes thus cut out with a red hot glass rod and washing off the sticky rubber with chloroform. The old-fashioned hard tube, with all its actual terrors, is or should be a thing of the past. The use of any directing rod within the lumen of the tube must be condemned even if advocated by such men as Penzoldt. Even the introduction of the sound should invariably be preceded by the introduction of the soft tube.

The next question is how to reach the stomach. Before introducing the tube a few minor details have to be taken into consideration. The diameter of the tube may vary from the size of an ordinary catheter to about ⅜ of an inch. I usually use two sizes in the same patient when seen for the first time—a small one giving less of the choking sensation first, when going into the fasting stomach—in order to accustom the patient to it—and a larger tube when aspirating the test-meal. By this diplomatic move the patient is somewhat at ease when the test-meal is to be aspirated; as a mater of fact the full stomach cannot bear the tube with the same degree of tolerance as the fasting stomach. The length of the tube should be about 28 inches, from 20 to 22 inches being the length between the incisor teeth and the cardia, according to the stature of the patient. A ptotic stomach will naturally require a longer tube. I like the method in which the proximal end of the tube is connected by a piece of glass tubing to another piece of soft rubber tubing. This glass rod permits us to see the quality and nature of the aspirated matter before it goes into the pear-shaped rubber bulb, a fact which will be well appreciated by the physician, as very often blood is seen through the glass tube, a signal that the tube should be instantly withdrawn. This appearance of blood need cause no alarm nor apprehension, as it is caused in most instances, by the patient straining; yet on seeing it we should be admonished to withdraw the tube. The other points to be considered are not to soil the patient nor soil ourselves. For that reason the patient's clothing is protected by tucking a sufficiently broad towel behind the shirt or waist collar and if the patient is a woman turn up the skirt of her dress. Anything savoring of or suggesting surgery should be sedulously avoided; for that reason I do not like the rubber apron on the patient or Turk's rubber pocket underneath the chin. The physician may protect himself by wearing a white gown, but one very soon learns to dispense also with that if the tube be introduced in the manner I am about to describe.

The patient is seated in an ordinary chair—specially constructed chairs are not required—and before attempting to introduce the tube the patient is told what is wanted. We demonstrate to the patient the absolute impossibility of doing any harm, trying to convince him that a soft tube could not possibly hurt. We likewise must urge the patient to keep on breathing, for, as a rule, he momentarily suspends respiration and the consequence is that he becomes cyanotic—a thing which is liable to embarrass and frighten the inexperienced physician. The choking sensation which the patient feels must be explained on the ground that it is something unusual and he must be told that he will soon be able to introduce the tube himself. We must likewise warn the patient not to bite on the tube as it would prolong the procedure, although closing the lips is of advantage in introducing the tube. False teeth must be removed. The patient is given a pus basin or something similar and is told to hold this with both hands under the chin. This has a double purpose. It catches saliva or vomit and busies the hands of the patient, who otherwise is very apt to reach for the tube.

The patient is now ready. The physician stands at the right side, putting his left arm around the back of the patient's neck. In this way we accomplish two very important things. First, our arm gives the patient an agreeable support to his back and, secondly, with our arm around the back of his neck we have the most robust patient entirely under our physical control. We then attempt to introduce the tube which has previously been immersed in water—no other lubricant is necessary. With our left arm around the back of the patient's neck we hold the proximal end of the tube between the thumb and index of the left hand—the tube running through the palm of this hand and the opening of the tube away from us This left hand is kept close to the patient's mouth. The tube, held this way, insures us against any of the stomach-contents spurting on us. The distal end of the tube—that part which goes into the stomach—is now taken between the thumb and index fingers of the right

hand, in the manner in which we hold a pen, and is introduced into the patient's mouth, which must not be opened any wider than is absolutely necessary, letting the tube pass all the time between the flexed third and fourth fingers of the left hand. The object of this last procedure is to limit the side motions of the soft tube and prevent kinking; it gives a certain degree of stiffness to the soft tube. As soon as we believe the tube to have reached the posterior pharyngeal wall we tell the patient to swallow and keep on breathing deeply. The tube is now fed into the stomach, the tube still passing between the third and fourth fingers of the left hand. It is not necessary to have the patient protrude his tongue or put our finger, as a guide, into the patient's mouth. The cyanosis of the patient, already mentioned, need cause no alarm as it is due only to a momentary cessation of breathing caused by the effort to expel the tube, in which effort the patient might succeed did we not hold the tube with the right hand.

This is my usual way of introducing the stomach tube. Whenever this method fails, and this happens very seldom, I use my stomach-tube director, which was described originally in the *Medical Record*, Aug. 29, 1896, and again in No. 24 of the *Berliner klinische Wochenschrift* of last year. That cases occur every now and then where it is impossible to introduce the stomach-tube ordinarily is a fact admitted by Riegel, Fleiner, Boas, Ewald and others.

The advantages of the instrument are two in number—it may be used as a director and it enables us to entirely dispense with the voluntary cooperation of the patient. As a director it absolutely prevents the stomach-tube from going anywhere else but into the esophagus, thus excluding the possibility of its entering the larynx. All that is to be done to insure safety is to bring the director with the tube inserted well back to the posterior pharyngeal wall, and to push down the tube with the left hand. The time required for arranging the director and getting the stomach-tube into the stomach should hardly exceed one minute. As this director dispenses with the cooperation of the patient, its utility in children, nervous patients, in the insane, and in attempted suicide is apparent

In ordinary cases the director could be removed as soon as the stomach-tube is about one inch beyond the epiglottis; *i. e.*, as soon as the sensitive parts of the fauces, pharynx and epiglottis are passed. But in cases of attempted suicide, the director must be left in the mouth during the whole washing, when it acts at once as mouth-gag, tongue-depressor, and director.

Have the aspirating rubber ball conveniently at hand and just as soon as the tube is in the stomach catch hold of the aspirating ball with the free right hand and after compressing it connect it with the stomach-tube. All this time the left hand remains busy holding the proximal end of the tube; the getting hold of the aspirator, the adjusting and connecting it must all be done quite rapidly with the right hand only. In removing the tube from the stomach we again have the tube pass between the third and fourth fingers of the left hand, being very careful to catch the stomach end of the tube. If we merely pull the tube out, the stomach end, as it comes out, will swing around and soil both ourselves and the patient.

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THE PATHOLOGY AND TREATMENT OF BILOCULAR STOMACH, WITH A REPORT OF TWO CASES.[1]

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WITHIN the last four years it has been my privilege to have under my care two patients with bilocular stomach, and I think, from the relative infrequency of these cases, and from the fact that surgery of the stomach is now seriously calling the attention of the surgeon, that no apology is necessary on my part for presenting before this learned body a few remarks on the pathology and the treatment of this interesting abnormal condition and recording somewhat in detail the histories of my two cases.

At the present time I believe it is generally admitted that bilocular stomach may be either congenital or acquired, but although the pathology of the acquired form is now fairly well understood there is a difference in opinion regarding the etiological factors of the congenital variety. That a congenital type of bilocular stomach does exist is certain, since this condition has been found in the fetus by Sandifort. Meckel, from the embryonal point of view, has given the explanation that this congenital defect must be regarded as the result of an insufficient development of the organ and that it is possible that the lamina which early in embryonal life form the stomach are undeveloped. It is also possible that this anomaly of the stomach results from the coalescence of half of the stomach wall and half of the intestine, which in this instance do not come together fully; or the mass from which the two stomach laminæ are derived does not undergo a complete division. In the *Journal of Anatomy and Physiology*, Vol. 17, is to be found a very comprehensive discussion as to the various possible ways in which a congenital bilocular stomach may arise, written by Roger Williams and entitled "Cases of Congenital Contraction of the Stomach, with Remarks." He bases his memoir on the observations made by many anatomists who have occasionally found a mild form of contraction in the middle of an otherwise normal stomach, but along with this another narrowing has been present which separated the antrum of the pylorus from the remainder of the stomach, in such a manner that the organ formed three pouches. These were easily demonstrated when

[1] Read before the American Association of Obstetricians and Gynecologists, Cleveland, Ohio, Sept. 17, 18 and 19, 1901.

the stomach was inflated. Since there also occasionally occurs a third narrowing arising in the region of the cardia, which according to Williams separates the greater cul-de-sac from the remainder of the stomach, according to this authority, it results that the organ may be divided into four sections by three strictures.

This explanation conforms with the opinion of physiologists, who assume that under normal conditions the stomach presents temporary contractions at the points named during the process of digestion, and who base these opinions on the results obtained from necropsies performed immediately after death, especially where this event occurred suddenly during the process of digestion and which demonstrated that the stomach presented two or three contractures. Now, inasmuch as the points where the strictures occur in congenital sacculated stomach are seated just at these places where physiological constrictions occur, Williams explains them as being exaggerations of the temporary physiological constrictions.

Rokitansky mentions as congenital defects of the stomach circular strictures at the cardiac or pyloric end of the organ and also, in rarer instances, stomachs which are divided into several compartments by rings of sclerotic tissue.

Lesshaft states that in some instances the stomach may take on the aspect of the small intestine and these strictures cannot be compensated for; some authors are of the opinion that they are due to a special development of the transverse muscular fibers. Mazzotti has recorded a case of a congenital bilocular stomach in a woman fifty years of age which in his opinion had been produced by an unusual development of the transverse muscular fibers in a certain point in the wall of the organ and which were the cause of the stricture. In another instance recorded by Saake, this authority was able to demonstrate the congenital origin of the stricture of the stomach by dissecting out two abnormally developed bundles of muscle which were transverse in direction and, according to this authority, demonstrates the physiological torsion of the stomach during its development if this localized overgrowth of bands of muscle fibers be considered as a vice in formation during the embryonal period.

On account of the various segmentations which the human stomach may occasionally give rise to, Cruveilhier and other authorities went so far as to assume that there existed an analogy between the human stomach and that of the ruminantia, but on the other hand Hudson doubts, and in all probability he is quite justified in so doing, the theory that this deformity represents an atavistic tendency. He clearly demonstrates that such defects are never met with in the higher orders of monkeys and also he believes that there is a great difference between a division into two similar parts and the highly differentiated stomach of the ruminating animals.

In 1882, Carrington presented three specimens of congenital bilocular stomach to the Pathological Society of London and he discussed the question as to the possibility of the condition being produced by an abscess during fetal life, which proposition he advanced from the fact that abscess of the stomach walls had been met with in the newly-born. He quoted a case observed by Goodhart in which a child had died of an abscess of the stomach thirty hours after birth, having hematemesis for a symptom.

Guillemot traces the etiology of congenital bilocular stomach to an abnormal development in the arterial supply to the organ. This is frequently observed and results in a separate blood-supply to each part of the stomach.

In the case of an acquired bilocular stomach several etiological factors are to be considered and first of all I would mention gastric ulcer, which, as we all know, may undergo the process of repair with the formation of a linear cicatrix involving part of the circumference of the stomach, and according to Grünfeld bilocular stomach represents thirty per cent. of those changes of shape of the organ due to an extensive process of cicatrization. I would add, however, that this author in his extensive statistics included the very mildest instances of circular contraction.

Lunnemann believes that a large majority of cases of gastric ulcer heal by a process of cicatrization, and if the ulcer has only produced a very limited defect in the wall of the stomach we then meet the characteristic white, flat, radiating cicatrices which finally result in the contraction of the mucous membrane in the neighborhood, drawing it toward the former lesion and producing radiating folds of the gastric mucosa. If, on the other hand, extensive ulcers undergo cicatrization prior to the occurrence of erosions or perforation of the blood-vessels, the result will be extensive changes in the shape of the stomach and if the ulcer was situated toward the middle of the organ the resulting cicatricial contraction will produce the characteristic hour-glass stomach.

In these cases the stomach forms two sacs which communicate the one with the other by a narrow orifice, and the only essential condition for the development of a typical bilocular stomach following an ulcer of the organ is that the site of the causative pathological process should be about at the middle of the lesser or larger curvature and extend more or less over the anterior or posterior wall of the organ. Other conditions that should be taken into consideration are the long duration of the ulcer, its slow cicatrization or its transverse extension in relation to the longitudinal axis of the organ. It should also be borne in mind that during the process of cicatrization of gastric ulcers extensive adhesions may be developed between the stomach and the neighboring viscera.

Rasmussen has called attention to what he terms a pressure sulcus in the etiology of acquired bilocular stomach and establishes a direct

causative relationship between the conditions and also a connection between gastric ulcer and pressure sulcus, considering the former lesion as an intermediary link for the formation of the hour-glass stomach. This author is at variance with the general opinion that strictures of the stomach which are observed following the presence of gastric ulcer are only due to the cicatricial contraction of the ulcer and this same authority asserts that in many cases the pressure sulcus of the liver continues over the stomach following a rather oblique direction downward from the middle of the lesser curvature or a little nearer the pylorus, toward the larger curvature, where a distinct impression can be found.

Now from the fact that Rasmussen found cicatricial tissue following gastric ulcer in the middle of the lesser curvature or somewhat nearer the end of the pylorus, that is to say, just at the point where the pressure sulcus is situated, in the large majority of cases, and since he was also able to demonstrate its presence in all cases of cicatrices of gastric ulcer after his attention was called to this sulcus, he is of the opinion that the latter sulcus represented an important etiological factor of gastric ulcer which consequently would have to be considered as the result of pressure necrosis.

According to the same authority this pressure sulcus of the stomach is capable of directly producing more or less well developed strictures of the organ. When large cicatrices are absent, Williams has denied that the production of bilocular stomach could result from the use of tight-lacing in the female for the simple reason that were this the case this condition would be far more frequently encountered. Hirsch, while not completely repudiating the theories of Rasmussen, believes that although occasionally slight anomalies in the shape of the stomach may be occasioned by pressure from the left costal border, and that over those regions of the stomach which are subject to pressure from corsets a certain disposition for the formation of gastric ulcer is quite liable to be created, still this mode of origin appears rather improbable when we consider the advanced degree of stricture formation in the stomach where the stenosis may have contracted down to such degree as only to admit of the passage of a finger or a pencil. The very large amount of cicatricial contraction resulting from the larger and more extensive gastric ulcers is quite sufficient to explain the etiology of a large number of cases of acquired bilocular stomach.

Bilocular stomach may be produced by a corrosion of the gastric mucous membrane from the ingestion of acids or alkalies, but the only case that I am aware of in which operation was undertaken for its relief is the one recorded by Klein. The patient was a female, twenty-seven years old, who had tried to commit suicide by swallowing concentrated hydrochloric acid and whose stomach was immediately washed out when she was taken to the hospital. She vomited some blood for a few days, but was discharged at the end of a fortnight, at which time she could swallow small pieces of meat. This improvement did not continue long and one afternoon she vomited the food taken. The treatment then consisted in passing bougies. The condition, however, getting worse, it was decided to operate upon the supposition that there was a stenosis of the pylorus. When the peritoneal cavity was opened, a few friable adhesions were found between the stomach and the peritoneum, but the stenosis was near the cardia about three finger-breadths from the pylorus. It was a very fibrous stricture giving rise to a typical hour-glass stomach, the stenosis being especially marked on the larger curvature. By invagination the lumen of the stricture would hardly admit the tip of the finger. The muscular walls of the cardiac region of the stomach had undergone considerable hypertrophy. As the duodenum could be easily brought over to the cardiac region of the stomach gastroduodenostomy was successfully performed.

Rudnew has recently called attention to syphilitic lesions of the stomach. They are produced either in consequence of the primary changes taking place in the gastric mucosa or from a pathological process arising in the serous membrane. Contraction of the newly-formed granulation tissue produces after a certain time a great diversity of deformities of the stomach, among which may be mentioned circular bands of fibrous tissue giving rise to a bilocular stomach or even a plurilocular variety. Einhorn distinguishes three forms of syphilitic affections of the stomach: (1) Syphilitic gastric ulcer; (2) syphilitic neoplasms of the stomach, and (3) syphilitic stenosis of the stomach.

I personally should admit without any hesitation that syphilis is probably an etiological factor in many cases of bilocular stomach and stricture of the pylorus, because other experiences in general abdominal surgery have convinced me that this potent and versatile poison is responsible for a large number of heretofore unknown surgical affections of the abdominal and thoracic viscera, but unfortunately up to the present time only a few cases of bilocular stomach can be with certainty traced to syphilis.

Carcinomatous affections of the stomach are quite liable to produce the bilocular variety and it may be assumed with a fair amount of certainty that cancer frequently causes this condition, which is easily understood when we recollect the great tendency of chronic gastric ulcer to undergo carcinomatous transformation. It is probable that when a bilocular stomach results from carcinoma of the organ the neoplasm is of the scirrhus variety and by contraction produces a stricture similar to that produced by cicatricial tissue.

In considering the pathology of bilocular stomach, we must discriminate between the congenital and acquired forms. The congenital form is to be distinguished from the latter in that it

is usually free from adhesions with the neighboring organs and that the stricture is longer and is not formed of cicatricial tissue, but of the normal structures forming the walls of the organ. The congenital variety recalls very closely the stomach of various rodents, such as the mouse, and where several pouches are found they closely resemble the stomach of the ruminantia, and since many do not have the shape of the hour-glass stomach, properly speaking, the term "segmented stomach" would, I believe, be far more appropriate.

In the congenital varieties, the cardiac part of the stomach is usually larger than the pyloric. The strictured part connecting the two pouches is glossy white, and as I have already mentioned is longer than in the acquired variety. Microscopically, no cicatricial formation can be discovered and only atrophy of the gastric mucosa, more particularly of the glandular tubes, can be seen.

Gastric ulcer has been met with in congenital bilocular stomach and has been situated at the site of the stricture, but these ulcers are secondary in origin and are probably produced by the pressure of the food passing through the strictured part of the organ.

As most gastric ulcers develop in the lesser curvature, that type where the sulcus of the stricture runs from the greater curvature to the smaller is by far more frequent. The result is that the stomach is divided into two fairly equal cavities which communicate at the lesser curvature, diverging from each other toward the greater curvature. The position of the contracting cicatrix will, of course, in many cases divide the stomach unequally and in several instances the cardiac pouch has been found much larger than the pyloric one, but it is a question in this case whether the stomach is divided into two unequal parts or whether the cardiac pouch has not become dilated by the accumulation of food after stenosis had taken place or for some reason before the cicatrix had formed. In this dilatation, which is such a natural sequence of stricture and which corresponds so closely with what takes place in stenosis of the pylorus, it is probable that in bilocular stomach the cardiac pouch becomes increased in dimensions by the mechanical dilatation produced by food.

This condition is, however, not always met with and in the beginning the cardiac pouch will often present a considerable thickening of its muscular coat due to an hypertrophy from overwork. The explanation is simple: because of the increased difficulty in the passage of the food the cardiac pouch is put upon a strain and hypertrophy from overwork is the natural outcome. Lunnemann found that the strata of circular muscles measured from two to two and one-half millimeters in thickness, while in the pyloric pouch it measured from only one to one and one-half millimeters. This amount of hypertrophy is absolutely essential to life.

It is worthy of note that the cardiac pouch frequently gives rise to serious trouble, due to a dilatation that results from an atrophy of its walls from inactivity and to muscular insufficiency. In some reported cases it was seen and could also be demonstrated clinically that the second stomach was dilated. A classical example is the case reported by Langerhans of a man, forty-seven years old, who had been afflicted with disturbances of the stomach for a number of years. The necropsy showed that the stomach was divided into two pouches, the pyloric pouch being very much larger than the cardiac. Such a marked degree of atrophy can be explained from the fact that the cicatricial tissue interrupted the vascular and nervous supply of the stomach, the result being that the movement of the muscular coat exhausted itself at the point of cicatricial contraction and was no longer able to transmit its activity to the second pouch which produced an atrophy from inactivity, because the food being forced into the second stomach remained in the latter for some time and was the cause of a marked gastrectasis.

The various conditions which occasion the pathological symptoms are consequently based (1) on the fact that the cardiac stomach is smaller than the pyloric; (2) that the contracting cicatrix draws the greater curvature upward, forcing the cardiac pouch to raise the food to the level of the cicatricial opening and being much easier exhausted at this high point; (3) that the stomach is in a state of ectasis, and (4) the communication between the pouches is often times reduced to a very narrow canal. In reported cases the lumen of the channel connecting the two pouches has been found to vary from the size of a lead pencil to an opening sufficiently large to admit the passage of four fingers.

When the lumen of the stenosed part is very small, the patient will soon die from inanition, and this condition becomes all the more serious owing to the fact that the pyloric pouch undergoes a torsion on its axis, being partially fixed between the cicatrix and duodenum.

Microscopically the cicatrix of a gastric ulcer which has produced a stenosis of the stomach shows passive changes, distortion of the gland-tubes from displacement, as well as active and luxuriant tissue proliferation which is most pronounced in the immediate vicinity of the cicatricial tissue, but not in the cicatrices themselves. Lunnemann found a considerable increase of glandular bodies, both at the margins of the cicatrix and in more distant parts of the stomach walls where the mucosa was otherwise perfectly normal, in a case of bilocular stomach, and considers this as the expression of the vascular hyperemia due to the ulcerative process. In other cases the mucous membrane has been found normal in the region of the ulcer, excepting in those instances where a carcinomatous infiltration of the tissues was present. The remainder of the gastric mucous membrane in most cases usually reveals the microscopical characters of a glandular gastritis.

Hauser, whose competency in the matter of pathology of the stomach is without question, has had occasion to make microscopical studies of the cicatricial tissue taken from bilocular stomachs, and he has found that it is accompanied by an enormous increase and proliferation of the glands of the mucosa which has become contracted, and this extends over the entire cicatrix and somewhat beyond it. A similar growth of glands is also met with in the mucous walls of very extensive chronic gastric ulcer which never completely heals. Beside the luxuriant growth of glands a change in their epithelial lining occurs at the same time, the normal epithelium of the pepsin glands being replaced by either cylindrical or cubical epithelium. From a very careful study Hauser concluded that the luxuriant growth of glandular structures appearing at the time of cicatrization of chronic gastric ulcer is independent of any secretory influence and that these results arise from the combined effect of an increased supply of nourishment during the process of ulceration and cicatrization, as well as from a disappearance of the inflammatory exudate which surrounds the glands, because by this means the production of the epithelium of the glands is increased and at the same time the physiological resistance of the neighboring tissue is weakened. The passive torsion of the tubes of the glands contributes toward their increase and development while the continuation of the growth to an unlimited degree is prevented by the progressive cicatrization and condensation of this tissue and, finally, the glands disappear. On the other hand, if solid cicatrization does not take place an exuberant glandular growth continues and the ultimate outcome will be a transformation into carcinoma. Thus, between a carcinomatous change of the epithelium of the glandular elements of the gastric mucosa, as well as an atypical abundant growth of the glands themselves which occurs every time an ulcer of the stomach undergoes cicatrization, there only exists a *difference in degree* and Hauser has proven the well-known clinical fact that a gastric ulcer may and often does transform into carcinoma.

Adhesions with the surrounding viscera are frequently met with in cases of bilocular stomach and are usually due to the process of cicatrization of a former ulcer of the organ. In some instances they are very extensive and bind the stomach to the liver, pancreas or the anterior abdominal wall.

When the opening between the two pouches in bilocular stomach is sufficiently large the patient may be free from any symptom of a gastric lesion and persons may attain quite an advanced age and die from some other cause, so that the pathological condition is only discovered at autopsy and it is probably that if all the necropsy records of the large hospitals throughout the world could be consulted a very considerable number of both congenital and acquired bilocular stomachs could be found. Since a congenital hour-glass stomach predisposes its owner to the development of an ulcer of that organ, it may easily happen that this congenital defect does not present any symptoms in early life and the patient will only present gastric disorders after an ulcer has formed. Such an instance has been put on record by Sievers in which a patient, twenty-six years of age, had been well up to that time, when a gastric ulcer developed and caused death from perforation.

In those cases where a bilocular stomach has been acquired, symptoms arise which can be clinically divided into two groups. The first are simply those to which a gastric ulcer gives rise; after the lesion has existed for many years, or after several recurrences have taken place, the second group of symptoms appears upon the scene and indicates the presence of bilocular stomach.

These symptoms are especially produced by a retention of the stomach contents, just as in the case of pyloric stenosis. Food, and more especially solids, such as bread and meat, remains lodged in the cardiac pouch and there produces a sensation of marked distention. After a meal, vomiting may set in immediately or in other instances it may occur in the early morning before breakfast. Not infrequently the vomitus will be found to contain food which has been taken one or several days before, a significant fact, because it indicates a stenosis somewhere in the stomach. Foul-smelling eructations also occur and simply indicate decomposition of food going on in the stomach. In most cases the appetite remains good and, as a rule, a liquid diet will not give rise to these symptoms.

The patients suffer from great thirst, and it may also happen that in this stage of the disease hematemesis, which may not have occurred for years, suddenly makes its appearance, in some cases so violently that the patient dies. As the affection progresses, gastric pain becomes unbearable and for this reason the patients refuse food, the result being that the loss of flesh is great and the patient takes on all the appearance of a malignant cachexia which leads the surgeon to the erroneous diagnosis of malignant disease of the stomach.

A very important symptom is a feeling of fulness in the stomach even after ingestion of small quantities of food and this symptom is only relieved after vomiting has occurred. Some patients describe their sensation as if the stomach became contracted and they may also suffer from pains during peristaltic movements of the organ which occur a few hours after digestion and which may finally become continuous as the affection becomes more marked. This symptom depends upon the condition of the cardiac pouch and of the kind of stenosis present. Beginning atrophy and muscular relaxation of the cardiac pouch give rise to daily vomiting.

Although the present methods of clinical examination have not attained that pefection by which the presence of a bilocular stomach can

be made out with any degree of certainty, it is nevertheless possible to diagnose this condition in quite a number of cases if various methods are combined. There is no doubt in my mind but that many diagnoses of dilatation of the stomach from pyloric stenosis or diverticula of the stomach or of the esophagus have been made, when in reality the true condition was a bilocular stomach; and even when the abdomen has been opened this condition may be easily overlooked when the cardiac pouch is small and situated near the diaphragm along with the cicatrix.

Simple inspection of the abdomen will rarely aid us in diagnosis, but we may be able to obtain some idea of the condition if the stomach is artificially inflated. If the abdominal walls are thin and flabby, and if the stenosis is not sufficiently narrow to prevent the passage of gas and water through it, it is easy to make the stenosis plainly visible by inflating the stomach.

It should be borne in mind that in those patients in whom the stenosis is very marked the cardiac pouch alone will become inflated. It may also happen that the gas remaining in the cardiac pouch will show the convexity of the stomach above the umbilicus, but the pyloric portion containing fluid will give rise to a succussion sound below the umbilicus, so that under these circumstances a differential diagnosis must be made between dilatation of the intestine and bilocular stomach. It is also important that the outline of the inflated stomach on the right remains in the median line or somewhat to the left of it, which does not correspond with the position of the pylorus. Peristaltic movements in the gastric region are of no value in the diagnosis of the affection we are considering. By palpation much can be ascertained. The epigastric and umbilical regions are often painful on pressure and not infrequently a resisting mass can be made out, above which a high pitch percussion sound may be elicited, while on both sides of this high pitched area of percussion a tympanitic sound is obtained. In some cases a tumor may be palpated in the left hypochondrium varying in size from one case to another, having indistinct outlines and being painful on pressure. This tumor may be due to cicatricial tissue in the bilocular stomach or to muscular spasms of the organ.

Much importance has been attributed to the splashing sound which is frequently met with in the region of the umbilicus, but it is in no way characteristic of bilocular stomach and simply indicates that the organ is dilated. Jaboulay has described a diagnostic sign which is different. In his case the splashing sound continued below the umbilicus after the stomach had been filled with water, while it disappeared in the upper epigastric region, that is to say, in the cardiac pouch. Tympanitic sounds remained in the pyloric pouch while in the cardiac pouch they became dull. This interesting phenomenon should be carefully looked for, but naturally if taken alone is quite insufficient for a diagnosis.

We should never neglect to try to elicit the splashing sound while the stomach is empty, care being taken to remove all liquid from the organ by the stomach-tube. Now, if this has been done and a splashing sound is obtained, it indicates in all probability that we are dealing with a bilocular stomach from the fact that the pyloric pouch has not been emptied by the siphon and contains liquids and gas. If a bilocular stomach be washed out, the water which has been introduced may not return, or a lesser amount than what was introduced runs back, a fact which can be easily explained from the liquid in whole or in part passing through the stricture and remaining in the pyloric pouch.

The use of the X-ray has been applied in the diagnosis of gastric diseases, especially by Jaworsky, and by combining the usual methods of examining the stomach he was able to diagnose several cases of bilocular stomach.

The chemistry of the stomach will also aid us in the diagnosis and should never be neglected, for in the majority of cases examination of the gastric contents showed that there existed entire absence of free hydrochloric acid or only traces of it. The acids of fermentation have been present in some cases. In cases where the gastric ulcer which had given rise to bilocular stomach was comparatively recent there was hyperacidity of the gastric contents. The absence of free hydrochloric acid and the presence of the acids of fermentation in the majority of cases of bilocular stomach is to be explained by the existence of a chronic gastritis. This very circumstance is rather surprising if one accepts the usual views held forth, that hyperacidity is an important factor in the formation of ulcerative processes of the stomach. It may be that the absence of free hydrochloric acid with the presence of the acids of fermentation will greatly aid in the diagnosis of bilocular stomach, but on this point more researches will have to be made, and at present it cannot be said to be of positive value.

As to the differential diagnosis, stenosis of the duodenum should be considered. The duodenum above the stenosis is frequently dilated to such an enormous degree that it may resemble a second stomach. This dilatation may in some instances be diagnosed before opening the abdomen, particularly in those cases where bile and pancreatic juice can be demonstrated in the gastric contents. In stenosis of the duodenum the pylorus may still carry on its normal functions, in which case the pylorus represents the orifice between the stomach and duodenum, which on superficial examination may have all the appearances of a bilocular stomach. When there is pyloric insufficiency the stomach and duodenum form one vast pouch.

When the stenosis is limited and does not cause any marked impediment to the onward progress of food, the prognosis of bilocular stomach cannot be said to be serious, but in all cases where the stenosis is marked the outlook for the patient is most unfavorable unless an op-

eration is undertaken. Death will occur when the stenosis has arrived at such a degree that a torsion on its axis takes place. From what I have already said there are quite a number of cases of bilocular stomach which never receive medical or surgical treatment during life for the simple reason that a correct diagnosis has not been made, but as soon as the condition produces symptoms, the only proper treatment is operative. The same indications apply to bilocular stomach as they do for gastric ulcer or of carcinoma of the stomach, either for their radical cure or to alleviate the complications to which these various lesions give rise.

An operation should be undertaken when a patient presents continued pain, repeated vomiting and other dyspeptic disturbances or when symptoms, such as increasing emaciation and cachexia, make their appearance. Several operations have been recommended and performed for the relief of bilocular stomach or its cure. In the first place a resection of the stricture with suture of the two pouches has been recommended, the new opening thus obtained being sufficiently large to allow the easy onward progression of food. Along with resection, gastrorrhaphy may possibly be indicated if there is a very considerable degree of dilatation of the organ. A gastroplastic operation performed identically in the same manner as the Heinecke-Mikulicz operation for stenosis of the pylorus has given a number of very gratifying results. Gastrogastrostomy is also indicated and consists in making a free anastomosis between the cardiac and pyloric pouch immediately under the stenosis without dealing with the latter. Gastrojejunostomy and gastroduodenostomy have also their indications, as well as operative and non-operative gastrolysis, the latter operation being only indicated when the symptoms accompanying bilocular stomach are chiefly due to extensive perigastric adhesions, the stenosis being sufficiently patent as not to interfere with the process of digestion. Digital dilatation as recommended by Loreta for stenosis of the pylorus has been done at least on one occasion some years ago, but would appear to be a useless and irrational mode of treatment

Regarding indications for the various operative procedures already mentioned, I would say that the surgeon must not only be guided by the simplicity, security and speed of the operation and by the favorable results obtained, but he must also take into consideration the given case as the anatomical changes vary tremendously from one case to another and what I have already remarked in discussing the indications for operative treatment of carcinoma of the stomach at the Annual Meeting of the Massachusetts Medical Society last June will certainly apply to the operative treatment of bilocular stomach, namely, that *no operation can be decided upon before the abdomen has been opened and the condition of affairs thoroughly ascertained, and it is only after the surgeon has become perfectly familiar with the anatomical conditions present that he may select the operation the most applicable under the given circumstances.*

Take, for example, a case where a large area of the walls of the stomach has become bound down to the pancreas, the liver, spleen or other viscera, it is very evident that a dissection of the stenosis would be impracticable and to say the least a most dangerous proceeding. Excision of the entire stricture followed by gastrorrhaphy can only be undertaken in very rare cases and so far as I am aware no operator has up to the present time performed it for the cure of bilocular stomach because this method is more complicated than the others and promises no better results. Gastroplastic operations are not to be undertaken if the cicatrix at the pylorus or in the middle of the stomach is very extensive or if the greater part of the mucosa is ulcerated or has undergone cicatricial changes so that sutures would not hold. If, however, the stenosed portion of the organ is small and movable so that it can be resected, and if after this has been done there still remains enough normal stomach wall at the point of the resection to effect a communication by means of a Heinecke-Mikulicz operation, the result will be extremely gratifying if the cardiac pouch has not undergone too great a degree of atrophy. I am very well aware that there are some operators who have had poor results from this operation in bilocular stomach, but I nevertheless must confess that my experience with it in the case appended at the end of this paper has been most gratifying.

I presume that taking all things into consideration, the most generally applicable procedure, at least in a large majority of cases, is gastro-anastomosis according to Doyen's or Woelfer's methods. By these operations two very important points are gained, first, a wide communication between the cardiac and the pyloric pouches and, secondly, the dilated cardiac pouch is relieved of its very difficult part of propelling the stomach contents forward, because the fact that the anastomosis is situated low down renders the onward progress of the chyme easy. Gastro-anastomosis is, I believe, indicated in all difficult cases of bilocular stomach, especially when the stenosis is long and narrow and where cicatricial atrophy of the cardiac pouch has occurred and where there are a large number of adhesions. Compared with resection, gastro-anastomosis is superior in that it can be more rapidly performed, and compared with gastro-enterostomy it is, I believe, a more perfect operation, because it re-establishes the stomachal digestion in its entirety. Compared with a gastroplastic operation, it is more advantageous in that it creates a wider communication between the two pouches and that the operation is not performed at the site of the cicatricial tissue. The peristaltic movements of both pouches are brought into more intimate relation and, what should be particularly borne in mind, the value of gastro-anastomosis increases the nearer the stenosis is to the cardia, because resection of the stomach and gastro-enterostomy

cannot be carried out so easily when the conditions are such as those just named.

As every other operation, gastro-anastomosis has its limits of application. It cannot be undertaken in those cases where the pyloric pouch is so small that an opening cannot be made in absolutely sound tissue—that is to say, at a sufficient distance from the stenosis.

In all cases where the proper conditions for the performance of the first three methods described are not present or where the stenosis is embedded in adhesions binding it to the surrounding parts, gastrojejunostomy is indicated, principally because the area of cicatricial tissue is entirely avoided during the operation. Gastroduodenostomy is not a procedure that I believe can ever take the place of gastrojejunostomy in cases where the adhesions are thick and strong, because the duodenum and its mesentery are bound down posteriorly; but when the descending portion of the duodenum and the cardiac pouch of the stomach can be easily approximated, then I think that gastroduodenostomy is the operation of choice and far superior to any other.

Operative and unoperative gastrolysis have occasionally their indications. Operative gastrolysis should be carried out in such a manner that after the adhesions between the stomach and the adjacent organs have been broken down no raw surface should remain, and for this reason in order to have a successful result I believe that all adhesions should be tied off close to their base between two catgut ligatures and as much of the tissue should be resected as is possible. The use of the thermocautery in breaking up lesions and for the prevention of their recurrence is, I think, to be condemned.

Non-operative gastrolysis consists in frequently inflating the stomach, the object in view being to stretch or tear fresh adhesions that are formed between the stomach and the neighboring organs. This treatment has given one or two good results in cases where it was tried and may be resorted to when indications for its use are present.

Case I.—A female, aged forty-nine years, a cook by occupation, applied at my clinic at the Tremont Dispensary in October, 1900, with the following history: No hereditary affection could be discovered. At the age of twenty years she began to work as cook and a few years later developed what in all probability was a severe chlorosis. After a prolonged treatment, the patient's health began to improve and she remained fairly well for a year or two, when at the age of twenty-eight years she began to present gastric disturbances. These symptoms consisted in severe pain in the region of the stomach, particularly after the ingestion of solid food. This was followed by vomiting, the vomitus sometimes containing blood, but we could not discover in the patient's history any distinct description of a true hematemesis.

According to the patient's story, she suffered from her stomach off and on until the age of thirty-six or seven years, since which time the severe pain and vomiting have been almost completely absent, but within the last year another set of gastric symptoms have begun. At present the patient cannot retain any food. After each meal, within an hour or two the patient complains of a heavy feeling in the epigastrium and suddenly, after a minute or two of sharp pain, her food will be vomited spontaneously. The vomiting is really more like a regurgitation. As the patient had not retained much food during the last three months, she was extremely weak and emaciated. She had a straw yellow color of the integuments and with her drawn features presented, to all outward appearances a subject in an advanced condition of carcinomatous cachexia. Her normal body weight had been about 150 pounds, but the patient stated that in the last three months she had lost thirty-seven pounds. Her tongue was coated with a white fur, the mucous membrane of the mouth was dry and the patient was troubled by a constant thirst. A marked constipation had existed for many years. Appetite poor. Sleep fairly good. The patient is not troubled by headaches.

On inspection nothing special was noted. Palpation of the stomach in an empty condition gave rise to considerable pain. Insufflation of the stomach showed that the lower limits of the organ extended to the umbilicus. The distention caused great pain. By palpation I thought that I could make out a distinct mass situated in the middle of a line drawn from the umbilicus and right costal arch, consequently in the region of the gall-bladder.

The patient was ordered a test breakfast which showed free hydrochloric acid in the gastric contents with an absence of lactic or other acids of fermentation. Blood-examination showed hemoglobin, 7 per cent.; polynuclears, 77 per cent.; mononuclears, 22 per cent.; eosinophiles, 1 per cent.; no leucocytosis.

I endeavored to ascertain if Jaboulay's sign could be obtained in this case, but it was absent and my diagnosis wavered between a bilocular stomach, of which from my examination I had no evidence, and carcinoma of the stomach arising from a former gastric ulcer. The patient was advised to submit to an early operation, which was performed a few days later.

After the abdomen was opened in the median line it was found that the stomach was bound by a large number of adhesions to the omentum and transverse colon, while the pylorus was bound down to the gall-bladder; after carefully freeing the organ from the omentum, colon and gall-bladder it was found to be a bilocular stomach, the cardiac pouch being about twice as large as the pyloric. The connecting stenosed canal was extremely thick and hard. From the conditions present I decided that a gastroplastic operation was naturally out of the question and that resection, followed by gastrorrhaphy, was inapplicable on account of the unequal dimensions of the

pouches and also because of the apparent atrophy of the stomach walls, which probably would not allow the sutures to hold. Gastrogastrostomy was for the same reasons to be rejected. The omentum minus was torn through and a loop of jejunum was seized and sutured to the posterior wall of the stomach—in other words, a posterior gastroenterostomy was done, Doyen's method having been found impracticable in this case. The opening between the stomach and the intestine was about four centimeters long, the anastomosis being done with three layers of sutures of fine celluloid thread. The omentum minus was closed with fine catgut and the abdominal wound closed by two layers of catgut for peritoneum and fascia with silkwormgut for the skin. In the evening the temperature was 39°C., pulse 100. The patient had vomited little since the operation and had voided about 200 c.c. urine.

To make the history of this case short, I would say that the patient made a very good, though slow convalescence, being discharged about nine weeks later in a satisfactory condition.

I saw this patient six months after the operation, at which time she had gained eighteen pounds in weight and was beginning to have a fairly good digestion, most functional disturbances of the stomach having disappeared. She was still constipated, requiring nightly medicine in order to procure a movement on the following day.

The following case has already been published in the *New York Medical Journal*, December 9, 1899, but I will reproduce it on this occasion in order to make this paper more complete.

Case II.—Female, aged forty-seven years, was first seen in March, 1898. At that time she was complaining of a severe pain in the right side and in the epigastric region, and of occasional vomiting after eating. The patient was a thin, anemic subject, in a rather despondent condition of mind. Examination revealed what was believed to be a dilated stomach in a state of ptosis and a movable right kidney. On the supposition that this was a case of gastroptosis and gastrectasis, the symptoms of which were exaggerated by the presence of a very movable kidney, nephrapexy was performed a few weeks later, with the result that the pain in the right side was completely relieved, but the digestive symptoms continued quite as before.

In November, 1898, the patient was again seen, complaining of her stomach, and a more careful history of the digestive disturbances was obtained, a thing that should have been done in the first place, as the symptoms were far too marked to have been neglected as they were.

At the age of seventeen the patient had typhoid fever and had suffered ever since from what she called indigestion; but at about the age of twenty-six attacks of pain in the epigastric region and vomiting began to occur, and have been more or less constantly present ever since. The attacks of gastric pain occur more especially after a hearty meal, excessive bodily exercise, or mental fatigue, but at no time was any blood vomited or passed *per rectum*. The menses have always been regular and painless. Chronic constipation of severe grade has been present for many years, and the patient has frequent attacks of frontal neuralgia. The heart and lungs are normal. Analysis of the urine gave the following results: Specific gravity, 1016; total amount in twenty-four hours, 1,200 cubic centimeters; color pale; reaction slightly acid; urea, 25.5 grams to the liter. No albumin or sugar. Abdominal viscera, excepting the stomach, in apparently nomal condition.

I would here remark that the patient's father died at the age of fifty-one of some obscure stomach trouble, from which he had suffered for many years.

A dilated stomach had been diagnosticated when the patient was first seen, but we now suspected that the gastrectasis was quite probably due to a benign, or perhaps malignant, stricture of the pylorus, because by palpation a somewhat painful mass could be detected in the left hypochondriac region, which had not been noticed when the patient was examined in March. The splashing sound could be elicited, but auscultation over the back when the patient swallowed water only showed the characteristic normal *glou-glou* sound. When the stomach had been moderately distended with CO_2 its lower border was found at about a finger-breadth below the umbilicus. The lower half of the abdomen was retracted.

The vomitus obtained during an attack of pain was a yellow mucus with a decided acid reaction. The stomach was irrigated and a test breakfast, consisting of a cup of tea, one egg, and a roll, was ordered, and the stomach contents were withdrawn two hours later. They were found to be composed of fluid containing about twenty-five cubic centimeters of the roll. After filtering, the analysis showed a considerable amount of free hydrochloric acid and a complete absence of lactic acid.

An exploratory incision was advised and accepted. The stomach was irrigated morning and evening with a 1-1,000 solution of naphthol B for one week prior to the operation, which was done on December 2, 1898. An incision twelve centimeters long was made, beginning at the outer border of the rectus muscle, midway between the tip of the sternum and the umbilicus, and was carried obliquely downward on the left side. When the abdominal cavity was exposed the pylorus was examined and found perfectly normal. At about the junction of the lower with the middle third of the lesser curve of the stomach was found a strictured portion uniting a normal lower third with a dilated upper two-thirds of the viscus. The strictured portion was about seven centimeters wide and three centimeters long, and was united to the surrounding structures by a few tough adhesions. These were broken down by the finger and a few snips of the scissors and the part liberated.

After the stomach had been well drawn out through the abdominal incision, an incision was made on the anterior aspect of the viscus in the longitudinal axis of the strictured portion. The stenosed portion would allow the passage of three fingers. The incision was continued upward and downward for about four centimeters, and when completed measured about eleven centimeters. A Heineke-Mikulicz plastic operation, as devised for the pylorus, was done, and when completed the line of union was about eleven centimeters long.

The borders were brought together by fourteen interrupted fine silk sutures which were passed through the stomach wall, but *did not include the mucosa or the peritoneum.* The silk sutures were covered by bringing the peritoneum together with a Lembert's suture of fine catgut. The peritoneum, fasciæ, and muscles were sutured with fine catgut, the skin and fat being united with aluminum and bronze wire.

The after-treatment was simple and recovery was remarkably rapid. On the afternoon and evening following the operation the patient vomited clots of partially digested blood. The next morning she was feeling well; temperature, 100.4° F., pulse 92. Vomiting of blood occurred in the afternoon, but the quantity voided was small.

On the third morning following the operation the patient, who had been fed by enemata, was allowed to have champagne and crushed ice by teaspoonful every hour. Feeding *per os* was begun on the sixth day, and gradually solid food was substituted for a liquid diet, so that just three weeks after the operation the patient was taking meat. The patient was discharged well on January 10, 1899.

I saw the patient this summer (1901), and found that she has remained in excellent health and that the functions of her stomach are apparently perfect.

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SOME UNUSUAL LOCALIZATIONS OF TUBERCULOSIS.[1]

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WARTHIN made a report in the MEDICAL NEWS of May 6, 1899, of some unusual localizations of tuberculosis which had come under his observation. He reported one case in which tuberculosis and sarcoma were co-existent in a wart of the skin, two cases of tuberculosis and carcinoma co-existent in the mammary gland, one case of primary tuberculosis of the nose, one case of primary tuberculosis of the lobe of the ear, one of primary tuberculosis of the heel, one of primary multiple tuberculosis of the brain, one of tuberculosis of a Graafian follicle, one of tuberculosis of the placenta, and one of tuberculosis of an artificial anus.

To these, I would add some others which have come under the observation of the Pathological Laboratory since that time. The material was fixed and hardened in alcohol, formalin, bichloride of mercury, or Müller's fluid, embedded in paraffin, sectioned and stained with hematoxylin and eosin, the diagnosis of tuberculosis having been made only after the tubercle bacilli had been demonstrated with the Ziehl-Neelsen stain.

Case I.—Tuberculosis of the Hypophysis: The subject in whom this was found was a young colored man, aged twenty-five years, who was admitted to the Medical Clinic of the University Hospital. His case was diagnosed clinically as acute general miliary tuberculosis. He died, and at post-mortem miliary tubercles were found macroscopically in the lungs, liver, spleen, kidneys and adrenals.

These findings were verified microscopically and when the hypophysis was sectioned, it was found to contain a small round or oval mass near the center of the posterior lobe. When the sections were stained, this mass was seen to be a circumscribed area of epithelioid tissue containing no blood-vessels. Few giant-cells were found and in the center of the mass, beginning caseation was seen. With the specific stain, scattered tubercle bacilli in small numbers were found.

I have had access to the "Index Medicus" and to the "Index Medicus Novus" and by means of these, I have looked up the literature of tuberculosis in general, acute miliary tuberculosis and tuberculous meningitis, and I have been unable to find reported a single case of tuberculosis of the hypophysis, so that, as far as I am able to know, this is the only reported case.

Case II.—Tuberculosis of the Intercostal Tissue near the Sternum, with Secondary Tuberculosis of the Axillary Lymph-Glands: This condition existed in a patient of Dr. Kinyon of Ann Arbor, with the following history: In May, 1899, she injured her sternum and an "open sore" resulted. Six months later, the axillary lymph-glands became involved and began to suppurate. The ulcer was curetted and an axillary lymph-gland was removed by Dr. Kinyon, May 24, 1900, and sent to the Laboratory for examination.

Sections of the curetting from the ulcer, showed that the floor and walls of the ulcer were made up of epithelioid tissue with very few small blood-vessels, and contained a large number of very large giant-cells with peripherally-arranged nuclei. The curetting, as a whole, showed little caseation. Sections from the axillary lymph-gland showed that its center was entirely replaced by epithelioid tissue without blood-vessels, containing few giant-cells and showing a beginning caseation.

I add this case because of the rather unusual seat of the primary tuberculosis and its secondary.

Case III.—Primary Tuberculosis of the Fal-

[1] From the Pathological Laboratory of the University of Michigan.

lopian Tube, with a Large Tuberculous Abscess in the Ovary: The patient from whom these specimens were taken was admitted to the Gynecological Clinic of the University Hospital and gave the following history: Mrs. A., Ann Arbor, Mich., aged twenty-five years, married, no children nor abortions. She has always had painful menstruation. One year and a half ago the cervix was dilated, but the dysmenorrhea showed no improvement. In June, 1900, she had "pleurisy, inflammation of the kidneys and bladder, and abscess in the pelvis." November 6, 1900, Dr. Martin removed the uterus, tubes and ovaries and sent the tubes and ovaries to the Laboratory for examination.

Gross examination showed that the tubes were greatly dilated and cystic and contained a yellowish granular material. The ovaries were swollen, covered with adhesions, and gave fluctuation. When the ovary was cut, it was found to be a large abscess containing greenish-yellow caseated material.

Microscopical examination revealed the presence of many miliary nodules in the plications of the tube. These nodules were composed of epithelioid tissue without blood-vessels, and in some nodules giant-cells with peripherally-arranged nuclei were seen. Sections from the wall of the abscess cavity showed that this wall was made up of this same epithelioid tissue without blood-vessels and contained but few giant-cells. Sections through some of the corpora fibrosa showed a beginning ingrowth of the epithelioid cells along the lymph-spaces.

Wolff, in 1894, collected all the cases then reported and found 110 cases. Since that time I have found two other cases reported, making 112. This case of mine makes 113 and another, which I expect to report in detail later because of the co-existence of tuberculosis and carcinomatous proliferation, will make 114.

Case IV.—Tuberculosis of the Thyroid Gland: This specimen came from a case which was diagnosed clinically as acute general miliary tuberculosis. At autopsy this diagnosis was confirmed by finding enormous numbers of miliary tubercles in both lungs and to a lesser extent in the spleen, liver, kidneys, adrenals and thyroid. Sections taken from the thyroid showed a small miliary nodule replacing the glandular substance. This small nodule was made up of central caseated mass surrounded by a narrow zone of epithelioid tissue containing neither blood-vessels nor giant-cells.

But few cases of tuberculosis of the thyroid have been reported. These cases have shown no clinical symptoms and have been found only as the result of thorough study of the autopsy material. Rolleston reported a case in which a large tuberculous abscess opened into the trachea and esophagus through small fistulæ. He quotes Fraenkel as having found 6 cases in 380 consecutive autopsies on tuberculous subjects. He also states that Chiari found 7 cases in 100 consecutive autopsies on tuberculous subjects, and hence he concludes that tuberculosis of the thyroid gland is not rare. Yet I have been able to find only four other cases reported, one by Perry and three by Voelker, making 18 in all. My case, then, would be 19 and it is the first that has been seen in this Laboratory in a series of over 60 consecutive autopsies of tuberculous subjects.

Case V.—Tuberculosis of the Uvula: This specimen came from a patient of Dr. Carrow with the following history: Mrs. S., aged between fifty and sixty years; a good family and personal history, and the mother of two strong muscular boys. She came to Dr. Carrow for a small nodule on the uvula. He removed it and sent it to the Laboratory for examination. The report sent back was "chronic granulation tissue probably tuberculous." He then removed the uvula *in toto* by extending his incision some distance outside the base of the uvula. Sections were made of the uvula and stained with hematoxylin and eosin and in carbol-fuchsin. Immediately under the epithelium was a granulation tissue very poor in blood-vessels. At a farther distance from the epithelium the sections showed small masses of epithelioid tissue, containing no blood-vessels. Scattered throughout these masses, and making up a large part of some, giant-cells with peripherally-arranged nuclei were found. Sections stained with the carbol-fuchsin showed tubercle bacilli in the giant-cells and a lesser number in the epithelioid tissue. In answer to the question whether the patient had pulmonary tuberculosis, Dr. Carrow informed me that she had a slight nervous cough but that he could find no evidence of tuberculosis in her lungs.

Although tuberculosis of the pharynx and larynx is of common occurrence, I have been unable to find any case reported where the uvula has shown any tuberculosis. This case, then, is unique in that it is one of the first, if not the first, case of tuberculosis of the uvula.

Case VI.—An Adenomatous Polyp of the Cervix Uteri Showing Tuberculosis: This specimen came from a patient, aged twenty-five years, with the following history: No children nor abortions. Seven or eight years ago, she "got her feet wet, took cold and had inflammation of the abdomen." For a year following, she had a continuous leucorrheal discharge which has gradually decreased in amount and now is absent. She has had no period since that time, she feels tired but otherwise is well. Examination showed that the ovaries were small and that a polyp, about the size of a cherry, was attached to the cervix. This polyp was soft, pulpy and bled freely upon the slightest handling. The polyp was removed and sent to the Laboratory for microscopical examination.

Microscopically, the specimen consisted of a large number of glands held together by connective tissue. The glands were tubular, branched and their lumina were lined by a single layer of columnar epithelium, the cells of which

possessed a finely granular protoplasm and a round or oval well-staining nucleus. Many of the cells had undergone a mucous change and the lumina of the glands were filled with a granular, stringy material staining grayish-blue with hematoxylin. The connective tissue of the polyp was made up of oval or spindle-cells, containing round or oval nuclei which stained deeply. Scattered through this connective tissue were small round or oval masses, made up of large round and oval cells with a large amount of finely granular protoplasm surrounding a bladder-shaped, lightly-staining nucleus. These areas contained no blood-vessels, but scattered through the areas were seen a few giant-cells with faintly-staining nuclei arranged peripherally in the protoplasm.

As far as I have been able to ascertain, this is the first specimen reported which shows the existence of tuberculosis in an adenomatous polyp of the cervix uteri. Two cases of tuberculosis in adenomatous polypi of the fundus uteri have been reported, one by Madlener, who cites another case but gives no reference.

Note.—Since this article has been in the hands of the editor, my attention has been called to two references of similar cases. Beyea, in the *American Journal of Medical Sciences* for November, 1901, reports a case which he calls tuberculous hyperplastic endocervicitis and which, from his description, must be similar to my case. He mentions having found other cases but does not state how many. Cullen, in his work, Cancer of the Uterus, cites three cases of tuberculosis of the cervix which had been seen at the Johns Hopkins Hospital. One was a tuberculous ulcer, another he calls a tuberculous condyloma of the cervix, and the third was a case of polypoid tuberculosis of cervix.

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NEPHRECTOMY FOR SEVERE AND PROLONGED MONONEPHROUS HEMORRHAGE.

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H. E. W.; thirty-five years old; occupation, merchant. General health has always been good. No history of gonorrhea or tuberculosis. He had a profuse hematuria eight years ago, which came on soon after lifting a heavy body and directly after coition, continued for several days and was painless. It ceased without treatment. Two months ago he had several slight chills, with some temperature. Soon after, while urinating at night, he noticed that the close of the act was painful. The next day there was dysuria, great frequency and imperative desire. A few drops of blood passed at the close of each act of urination.

The urine was examined microscopically, and was found to contain blood and pus. After this, the hematuria was constant, clots formed in the bladder, paroxysmal pains came on in the back, and were increased by pressure over the kidneys, the right side being most painful. After a week or ten days the pain lessened, but the bleeding continued as profuse as before. The quantity of blood lost must have been great, for the patient was very anemic, very weak, and had lost thirty pounds in weight.

Examination.—Penis normal, with small meatus; testicles, prostate and seminal vesicles, normal; bladder-wall at base not thickened, but a little tender on the right side; ureters not enlarged; kidneys cannot be palpated; urethra hyperesthetic to such an extent that a satisfactory examination could not be made, even with the thorough application of a ten-per-cent. solution of cocaine hydrochlorate; bladder capacity, ten ounces; contact sensibility, normal.

An effort was made to control the bleeding, which was supposed to be vesical, by injecting two ounces of a one-per-cent. solution of sodium chlorate. This was repeated a number of times on the 7th and 8th of October, but proved useless, and, I may say in passing, that although the local use of this remedy is highly recommended by some for this purpose, I have not found it to possess any value.

On October 9th, under chloroform anesthesia, he was cystoscoped. The image of the vault and those of the right and left segments were entirely normal. Blood could be seen issuing from the right ureter, and a bright scarlet band of blood-clot could be seen waving from its mouth. Clear urine came from the left ureter. Lying close to the neck of the bladder, a reddish mass, presumably a blood-clot, could be seen. The mucous membrane around the internal urethral orifice was intensely congested.

My colleagues, his physician and the consulting surgeon, believed that the hemorrhage must surely come from the bladder and that there must be a tumor. Like many others, they had but little faith in cystoscopy, and advised sectio-alta, to show that there could be no mistake about the source of the hemorrhage. This was done. A careful inspection of the inside of the bladder, by reflected electric light, gave the same results obtained by the cystoscope. The red mass in the bottom of the bladder was a blood-clot, and the hemorrhage came entirely from the right ureter.

On account of the great urethral hyperesthesia and the congestion about its internal orifice, the internal and external sphincters and the prostatic urethra were thoroughly stretched by uterine dilators. The meatus was cut and the phallic, bulbous and membranous urethra dilated rapidly with sounds to its utmost capacity.

Free hemorrhage followed the stretching of the bladder-neck. This was checked by hot

water. The bladder was closed by silkwormgut sutures passed through the skin, the abdominal muscles, and the bladder, including the mucous membrane. The space of Retzius was shut off entirely by attaching the anterior bladder-wall to the transversalis fascia, and the insertion of the recti muscles by buried catgut sutures. This closed the bladder tightly around the De Pezzer suprapubic drainage tube. Two quarts of normal salt solution were given in the chest by hypodermoclysis.

On October 22d the kidney was removed through the incision described by Abbe (*Annals of Surgery*, 1897), and by Mayo Robson (*Lancet*, May 14, 1898). The peritoneum was easily drawn to the left; the ureter rolling up with and upon it, was slightly larger than normal. It was examined carefully from the pelvic brim to the kidney without our finding any trace of neoplasm, stone or ulcer. When the kidney was pulled down slightly, blood could be seen coming out of its pelvis and passing down the ureter in interrupted spurts. This would clot about half-way down and the clots could be squeezed toward the bladder, but almost immediately their place would be taken by others. The kidney was loosened from its fatty capsule, a soft-rubber ligature drawn gently around the blood-vessels, and a free incision carefully made with a thin section knife upon its convex side and through its full length. As the kidney was not indurated, but was a little softer than normal and did not fluctuate when pressed upon, I did not expect to find cancer, sarcoma, or a tuberculous condition; but I did think I would surely find a papilloma in the pelvis or one of the calices. Greatly to my astonishment there was only a general purpuric condition. I would have sewed it up had the patient been entirely under my control, but his weakness was so great, and the macroscopic appearance of the kidney so degenerated, that we determined to remove it.

Two quarts of normal salt solution were used intradermically during the operation and he received four ounces by the rectum every three hours for the first three days; pain and heart's strength being controlled in the usual manner.

His general condition was so bad and the oozing from the wound so profuse that I was obliged to pack the greater part of it, which greatly retarded his final recovery.

Immediately after the operation, the left kidney commenced to secrete clear and acid urine freely. The De Pezzer tube, which had never leaked, was retained purposely in the bladder to run as a tell-tale, and to afford a method of urination, comfortable and free from strain, for the first few days. It was removed on October 26th, and its track closed tightly in twenty-four hours.

His stomach being irritable, he was given, as nourishment, hot milk with Vichy (Celestin's), for the first four days, when some bovinine was gradually added.

The last of the packing was removed on October 29th. For several days he complained of colicky pains in the neighborhood of the cecum, the secretions of the wound had a fecal odor and contained the bacillus coli. There was much pain for a week, but this was controlled very well by the free application of orthoform. A solution of lactate of silver, 1-3,000, in distilled water, was used to irrigate the wound twice daily; this soon removed the odor.

On November 4th I had an alarming experience with him. The urine, which had been freely secreted since the operation, became very scant, high colored, and contained some albumin and much bile pigment. His temperature rose to 101.3° F. and his pulse to 120. He complained of much pain over the remaining kidney. He was given three grains of calomel, by the mouth, and a intradermic injection of three pints of normal salt solution. In a few hours afterward the secretion of urine became profuse, the pain disappeared, and the next day he was all right. He was sent to his home at Santa Barbara on November 15th, with the wound entirely healed.

I have employed this Abbe-Robson incision three times for nephrectomy where necessity existed for the careful examination of the ureter, and, while I like the exploratory freedom which it gives, I cannot commend it. The muscular fibers are apt to be torn across in the process of retraction or in separating them.

I have satisfied myself of this by experimenting upon the cadaver, and the claim that it is a practically bloodless operation has not been in my experience substantiated. I prefer the clean cut, beginning in the front of the quadratus muscle, half-way between the crest of the ilium and the twelfth rib, and extending obliquely, downward and forward above the anterior superior spinous process of the ilium to the semilunar line, which may be found illustrated on page 453, Vol. I., Operative Gynecology, Kelly. This affords the same freedom for the examination of the kidneys and ureter; the same advantage of a prone position; is not any more bloody than the other operation, and gives a wound surface to my mind less liable to infection, and, I know from experience, without practically any liability to subsequent hernia.

Sections taken from the cortical and medullary portions of this kidney were examined by our pathologist, Prof. Stanley Black. He reported that there was not sufficient change anywhere observable to account for the profuse leaking of blood; that without the history of great and long-continued mononephrous hemorrhage he would regard the sections as not those of a diseased kidney. Macroscopically, the kidney when removed from its bed was intensely purple, bled profusely on section, and continued to bleed, seemed soft and degenerated, and as the hemorrhage had been so profuse, and so weakening and depressing over a long period, and the blood continued to well out of the cut surface longer than is usual after section, it was deemed wise by my colleagues and myself to do a nephrectomy in place of the nephrotomy which one would

naturally like to try where malignant growth was found to be absent, and the hemorrhage due to an undiscoverable cause.

No purulent focus was found in this kidney, either before or after its removal. The pus present in the urine undoubtedly had its origin in the subacute inflammatory condition of the posterior urethra, which may have had a reflex connection with the renal hemorrhage. The urethral hyperesthesia disappeared entirely after the overstretching of the whole canal at the time of the suprapubic section; full-sized instruments can be passed easily, without pain or spasm.

At the time of the publication of this article the individual is in excellent health, and conducts, successfully, a large mercantile business.

MEDICAL PROGRESS.

Unusual Signs of Aneurism.—The classical symptoms of aneurism are five in number, namely, tumor, thrill, expansive pulsation, bruit and shock, and yet any one or all of these signs may be absent. Besides these there are many well-known symptoms and signs resulting from pressure of the aneurism upon surrounding organs. M. E. FITCH (*Med. Times,* Nov., 1901) describes several signs of aneurism of the aorta which are rather unfrequently observed, but are of certain value when the more typical signs are wanting. Drummond's sign is elicited by placing the stethoscope over the manubrium. The patient is then ordered to take a full inspiration, allowing the air to escape slowly through one nostril. A peculiar interruption of the breath sound is given to the column of air by the aneurism. Cardarelli's sign of lateral movement of the larynx is similar to that of tracheal tug and closely resembles it. Ewart claims that slight degrees of tracheal tug may be present in normal persons. Scheele's sign is a dangerous one, as shown by the fact that two out of three cases upon whom it was tried died from internal rupture soon after submission to the treatment. He discovered that by pressure upon both crural arteries at the same time a severe pain would be produced in the aneurismal region with the disappearance for the time of the cystolic bruit. Perez's sign is a creaking sound heard over the sternum in cases of anterior mediastinitis when the patient raises and lowers the arm from the shoulder.

Antityphoid Inoculation.—As the years go by medicine is claiming for itself greater exactness as a science, and perhaps in no other field more than in serumtherapy. One of the last additions to this means of treatment is that of antityphoid serum or vaccine, as it is most unscientifically called. A. E. WRIGHT (*Lancet,* Oct. 26, 1901) gives a most important contribution to this subject concerning observations in the Richmond Asylum, Dublin, an institution for the insane. After excluding all the patients above fifty-five years of age as insusceptible to the disease, the total number of those susceptible to the disease at the date on which the inoculations were made is fixed at 655, 541 being insane inmates, 114 nurses, 511 of the former having been inoculated, of the latter none. The number of cases occurring in the uninoculated and inoculated, respectively, during an interval of twenty-four days between the completion of the inoculating and the last case of the disease to develop is as follows: Uninoculated, 114 persons exposed, 5 stricken, no death; inoculated, 504 exposed, none stricken. The comparative incidence of typhoid fever in the inoculated and uninoculated calculated upon the average strength of each group during the period intervening between the commencement of the inoculation and the termination of the epidemic is as follows: Uninoculated, average strength 298, number of cases 30, number of deaths 4, percentage of cases 10.1, percentage of deaths 1.3; inoculated, average strength 339, number of cases 5, number of deaths 1, percentage of cases 1.5, and the percentage of deaths 0.3. While antityphoid serumtherapy is still in its infancy, no one can with reason doubt that the days of deadly typhoid-fever epidemics are over.

Intravenous Medication.—It often happens that rapid action of drugs is necessary to save patients from death. For this purpose G. BACCELLI (*Klin. therap. Woch.,* Nov. 10, 1901) recommends the introduction of remedies directly into the veins. It is especially in the severe forms of pernicious malaria where muriate of quinine thus given has accomplished wonderful results. In the grave forms of syphilis there need be no hesitancy about injecting sublimate, as the albuminate of mercury formed is readily soluble in the excess of albumin present. The occurrence of thrombi, edema and perivascular hemorrhages is due to faulty technic. That the action of the mercury is prompt can be seen by the salivation which begins almost at once after injecting. Recently the author has used sublimate intravenously with astonishing results in cattle for foot and mouth disease.

Tuberculosis of Cervical and Bronchial Lymphatic Glands.—Whether scrofula is always caused by or associated with the bacillus tuberculosis has not been as yet definitely determined. While by some it has been ascribed exclusively to this organism others have thought that it might arise through the agency of other microbes and that in certain cases tuberculosis might subsequently supervene. HUGH WALSHAM (*Jour. Path. and Bac.,* Nov., 1901) considers this subject under the following heads: (1) Is the tubercle bacilius or its involuted forms always found in scrofulous glands? (2) What phases does the bacillus pass through in these glands? (3) What are the histological changes produced by these bacilli in such glands? He examined postmortem the cervical and bronchial glands in twenty-seven consecutive cases of pulmonary tuberculosis. These were chosen in preference to such glands removed during life, because of the suppurative changes generally

present in the latter. In all cases examined the bacillus tuberculosis was found. In five the gland substance proper was changed into a caseous mass and hence was typically scrofulous. He believes, therefore, that so-called scrofulous glands are really tuberculous in nature. Many other varieties of microbes were also found in these glands, but the changes produced are not due to such, as they are but seldom found in the gland substance proper, chiefly being present in the peripheral lymph sinuses. Much variation in the morphology of the tubercle bacillus present was observed. Greatly beaded, budding and branching forms were frequently observed. Schrön's capsules were also present. The first histological change produced in the gland substance proper is the proliferation of the adenoid reticulum with a disappearance of the lymphoid cells. The hyperplasia present is distinguished by the transformation of normal gland tissue into large-celled tissue. Pigmentation is frequently observed, as well as lardaceous change. It is impossible to form an opinion as to whether a given lymphatic gland is tuberculous by naked eye appearances. In all cases serial sections should be made. It is still an open question whether or not the lung can become infected by the gradual extension downward of the bacilli in the lymph channels. In those cases in which the tuberculous changes in the cervical glands are further advanced than in the bronchial it is probable that the lung infection has occurred in this manner. In many such cases the tonsil is the portal of entry. As a rule, however, the infecting organisms are conveyed to the lung through the inhalation passages.

Multiple Sclerosis.—Three cases are recorded by R. v. JACKSCH (*Wien. kl. Rund.*, Oct. 9, 1901) which, according to the general description of the disease, must be classified among multiple sclerosis, yet which presented certain variations which place them in a separate class. The typical symptoms—nystagmus, tremor and changes in the optic papilla—were absent, or present only transiently while inability to go backward and Romberg's symptoms were present. In all three the etiology was the same: The patients were employed in a chemical factory where they were obliged to expose the lower half of their bodies to heat, while the upper was constantly subjected to draughts, so that trauma of a thermal nature must be held responsible.

A New Surgical Position—Access to the diaphragm for surgical operations within the abdomen is especially difficult, because it is almost impossible to get the patient into such an attitude as will keep the parts exposed to work with the least interruption. G. KELLING (*Centralbl. f. Chir.*, Oct. 19, 1901) illustrates what appears to be a very good solution of this difficulty so far as attitude alone can surmount it. The patient in dorsal decubitus is brought to the end of the table so that his lower extremities, pelvis and most of his lumbar spine hang over this end; the feet are supported on a cushion. Slipping is prevented by straps over the shoulders in the usual way, and about the thighs at the groin; the former are to be attached to the other end of the table, the latter to the leg-pieces which hang vertically downward. A screen is erected on a half circle of hoop-iron which passes from side to side just under the arm-pits and supports a sterile towel or sheet and shuts off all possibility of the patients coughing or vomiting into the wound. The abdomen is then opened according to the indications of the disease, and the position assisted by gravity carries most of the organs downward toward the pelvis. In general terms the position appears to be the reverse of the Trendelenburg position. The author of it claims much in its favor.

Parametritis Posterior.—Pelvic inflammations in woman are all important to her as the patient and to us as surgeons with a view of what we shall do for them. P. BROSE (*Zeitschr. f. Geburtsch. u. Gynäk.*, B. 46. H. 1) sums up his latest observations on the subject as follows: Parametritis posterior, according to Schultze, is an affliction of the connective tissues and not of the peritoneum. Parametritis posterior and the parametritis atrophica circumscripta of Freund are the same processes. Parametritis posterior often appears with diseases of the peritoneum, tubes and ovaries, and also not uncommonly with parametritis atrophica circumscripta of other parts of the connective tissue of the pelvis. For the cure of parametritis posterior which has resisted all other means, ventrofixation, even if the uterus is anteflexed, is a most successful procedure. When the uterus is retroflexed and bound down by inflammation or not complicated by inflammation, ventrofixation has precedence over all other means of treatment.

Pyloric Stenosis After Poisoning.—A case of pyloric stenosis, which followed the ingestion of a large amount of crude muriatic acid is reported by A. HAMMERSCHLAG (*Wiener kl. Rund.*, Oct. 9, 1901). A gastro-enterostomy, during the performance of which a deep constriction at the pylorus was found, completely cured the patient. Cases where the chief effects of the poison manifest themselves upon the pylorus are not very common and are difficult to explain. It is probable that the coating of mucus which is found, especially in drinkers and smokers, offers a certain protection to the esophagus and fundus of the stomach and to some degree neutralizes the acid. If the stomach is distended, the greater curvature is generally first affected by the corrosive fluid; if, on the other hand, it is empty, the entire gastric mucous membrane is liable to be destroyed unless there is mucus present to protect, when the fundus will pass the fluid on to the pylorus. Where the gastric glands are destroyed and the pylorus is narrowed there will be, as in this case, a high percentage of lactic acid present in the gastric contents.

Changes in Blood and Marrow in Chronic Arsenical Poisoning.—Notwithstanding the extensive literature concerning arsenical poison-

ing, but little is to be found therein with respect to the changes produced in the anatomical features of the blood. A comparative study of these changes and the degree of cutaneous pigmentation present throws light upon the relation of hemoglobin to the pigment of the skin. Different views exist upon this subject, some claiming that melanin is derived from hemoglobin while others maintain the controverse. J. C. MUIR (*Jour. Path. and Bac.*, Nov., 1901) reports the study along these lines of forty-eight cases of chronic arsenical poisoning. Of these nine were also examined postmortem and the marrow changes observed. In the blood-examinations the hemoglobin estimations were obtained by means of Fleischl's instrument; the red and white blood-cells were counted with Gower's hemacytometer; the dried films were fixed with alcohol and ether and stained with hematoxylin and eosin; in a few cases, however, Ehrlich's tri-acid stain was used. The bone-marrow was prepared in films and similarly stained. The blood of arsenical cases having deep cutaneous pigmentation is decidedly richer in red cells and hemoglobin than that of slightly or non-pigmental cases. This disproves the almost universally-accepted hypothesis that the pigmentation is due to destruction of the hemoglobin or red blood-cells and is evidence for thinking that the melanin of the skin is an important element in the production of hemoglobin. In human beings arsenic causes a decided erythroblastic reaction in the marrow of the long bones. A slighter but distinct leucoblastic reaction also occurs, which, however, may be in part or wholly due to an accompanying tuberculosis. The erythroblastic function of the marrow of the long bones is more easily stimulated in the presence of a large store of cutaneous melanin.

Determination of Organic Acid in Urine.—To determine the amount of organic acid present in urine the following method is given by F. OBERMAYER (*Wiener., kl. Rund.*, Oct. 9, 1901): Forty c.c. of acid urine are precipitated with chloride of barium; 25 c.c of the filtrate are diluted with 15 c.c. of distilled water and 6-7 drops of an alcoholic solution of dimethylamidoazobenzol added. Filtration is now carried on with decinormal hydrochloric acid until there is a decided change of color. The amount of the acid used will be an indicator of the amount of organic acids present in 20 c.c. of urine. Creatinin and albumin must be removed from the urine before the titration is begun.

Diagnosis of Tuberculous Meningitis.—The introduction of the lumbar puncture has made it possible to examine directly the exuded fluid and various methods are in current use to prove whether or not the fluid is tuberculous. R. BREUER (*Wiener klin. Rund.*, Oct. 9, 1901) briefly reviews these. A positive result after injecting the aspirated fluid into guinea-pigs takes too long to be of value. It has been pointed out that cerebrospinal fluid forms an excellent culture medium for the tubercle bacillus, but to set the fluid aside in the incubator and await a multiplication of the germs would also demand patience. The agglutination test is of no value, and the finding of a preponderance of mononuclear leucocytes is not always conclusive for tuberculosis. A direct examination of the stained sediment of the fluid is generally negative, but when done properly has proved positive in the 17 cases examined by the author. The fluid must be collected in test-tubes each containing 4-5 c.c. and these set aside, care being taken not to shake them. After 3-6 hours a very fine coagulum, containing the cellular elements with the bacteria, forms, while the fluid itself will be absolutely clear. An examination of the coagulum will almost always be crowned with success. In a second article in the same number, J. DONATH discusses the serodiagnosis of tuberculous meningitis. Five to fifteen drops of a specially-prepared, homogeneous culture were mixed with one drop of cerebrospinal fluid. The results were noted after 8-24 hours. Of four cases in adults there was a negative reaction in one, a partial one with a dilution 1:5 twice and a complete one with a dilution 1:5 once. In two cases in children the reaction turned out negative. The clinical value of the method according to the author is slight.

Dangers of Internal Urethrotomy.—The choice between the internal and external method of doing this operation is always difficult with the greater dangers on the side of the internal, says LAUWERS (*Jour. de Chir. et Annal. de la Soc. Belge de Chir.*, Sept. and Oct., 1901) and further gives the following points: As soon as it is impossible to pass a retention catheter or as soon as fever persists in spite of its presence, it is necessary to watch the patient most carefully and to be ready in the event of the appearance of serious symptoms to perform external urethrotomy or subpubic cystostomy. He has performed external operations for checking symptoms of infection of grave degree after an internal operation and is persuaded that the life of his patient was saved in consequence of it. The subpubic cystostomy certainly secures direct and free drainage, but presents the great difficulty of filling the wound in the urethra from above with the poisonous contents of the infected bladder. He therefore claims that the simple external urethrotomy shows better surgical judgment.

Nephrolithiasis and Spinal Disease.—The relation between renal stones and affections of the spinal cord are summed up by H. SCHLESINGER (*Wien. klin. Rund.*, Oct. 9, 1901) as follows: (1) Renal stones have been observed rather frequently in traumatic destruction of the spinal cord and syringomyelia; much more rarely in tumors; (2) the symptoms of nephrolithiasis follow after months or years; (3) the stones are generally phosphatic, less often uratic; (4) cystopyelitis is generally present with the phosphatic stones; (5) the spinal affection seems to favor the formation of stones directly or indirectly.

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SATURDAY, DECEMBER 7, 1901.

NEW DISCOVERIES IN INTESTINAL PERISTALSIS.

PHYSIOLOGICAL research of much more than ordinary interest to medical practitioners was reported by Dr. Walter B. Cannon before the Boston Society of the Medical Sciences at its last meeting, November 19, 1901. The addition to our knowledge thus made is likely to have far-reaching effects in clearing up a number of points heretofore obscure.

Dr. Cannon is already well known to students of physiology for his interesting observations on the movements of the cat's stomach during digestion, these being revealed clearly by the Roentgen rays when the food is mixed with a small proportion of bismuth. The present research is a logical continuation of the former, but in many respects of more practical importance. It considers in a similar way the movements of the intestine, and reveals these adequately for the first time, and therefore by almost certain analogy those of the gut of all mammals, including man. The events described here were proven not only by negatives taken directly with the rays passing through the animal but by actual demonstration on the cat.

Intestinal peristalsis as revealed by our new light consists of "recurrent segmentation" combined with advancing movements. This discovery of recurrent segmentation is new and is obviously the most interesting mechanical process of the small intestine. A string-like mass of chyme, four or five centimeters long, is seen lying quietly in one of the intestinal loops. Suddenly an undefined activity appears in the mass and a moment later constrictions at very regular intervals along the length of the food mass have cut it into little bits. In two seconds (on the average) constrictions around the centers of each of these little portions have divided each of them into halves, and have thus united the latter into similar masses occupying the spaces first mentioned. Thus the alternate dividing process goes on for half an hour or more in each mass of chyme. These regularly alternating constrictions occur in the cat twenty-eight or thirty times a minute, so that a given length of digesting food may be chopped apart and rejoined at least a thousand times before it passes along into another loop.

Here we have an explanation for the first time how the food is brought into contact with the gut-wall with intimacy adequate to the minute and complicated functions of mixture with the juices and of absorption. So, too, is explained at once what is the motive power of absorption by villus and by capillary and the force which so powerfully aids the circulation of blood in the gut.

The peristalsis in the large intestine is found by actual sight to be from the left end of the transverse colon to the ileocecal valve—antiperistalsis. The valve was found to be perfectly competent for the normal contents of the gut, for by no manipulation could they be forced backward into the ileum. On the other hand, liquid nutrient enemata readily passed upward and throughout the small intestine in even a quarter of an hour. From these facts one understands fully, again for the first time, the function of the ileocecal valve, for, the peristalsis of the large intestine being backward were it not there, harmful admixture would take place. Again, one can now realize the physiology of nutrient enemata, and that they are absorbed probably in the small intestine rather than in the large. Perhaps, too, the cause of certain common cases of appendicitis is revealed, the possibility now appearing that violently toxic substances from the rectum may be passed backward by the antiperistalsis and into even a normally closed appendix.

As was found to obtain, also, in case of the stomach, vexing emotions instantly stop all movements of the intestines, thus explaining many an experienced attack of functional indigestion.

We understand that the complete paper giving the details of these interesting new facts will appear in the *American Journal of Physiology* early in 1902. We are glad to have the opportunity of advancing these notes on this interesting and productive piece of work. We hope that these same observations will soon be made on the human subject so as to further this promising line of inquiry.

HOME-TREATMENT OF TUBERCULOSIS.

IT IS the custom to say that "end-of-the-summer colds hang on." There is perhaps some truth in the tradition, but by physicians it is generally understood that most of the presumably persistent summer and autumn colds are really pulmonary tuberculous processes that have been lighted up to a noticeable degree by the overexertion of vacation or the exhaustion incident to hot weather. Cases of tuberculosis are perhaps much more prominent in ordinary practice during the fall than at any other season of the year. The constantly-recurring problem for the physician is, How shall these cases be treated when first recognized? Because of the meeting of the Tuberculosis Congress in London during July, and the medical interest in the subject thus awakened, a number of practical points have recently been brought into prominence in the medical journals.

The important phase of the question of treatment that first presents itself is, Shall the patient be sent away from home? The affirmative answers to this question are by no means so unanimous as they used to be. Change of climate is no specific for tuberculosis. Any particular climate would seem to be no better than any other except inasmuch as it may allow of patients being more continually out-of-doors. For this, uniformly-mild, warm weather is not absolutely essential. On the contrary, for most people brought up in a changeable climate and accustomed to the bracing tonic of yearly wintry recurrences, a continuously-warm climate may prove so relaxing as to be positively harmful. Many a healthy person compelled for some reason to miss the northern winter to which he has been accustomed all his life may feel distinctly less active during the succeeding year.

It is probable that the enervating effect of a hot summer has much more to do with the development of the frequent acute exacerbations of pulmonary tuberculosis seen in the fall than the supposed deleterious effects of the changeable weather. Certainly the conditions found in these cases, as a rule, are not the results of recent pathological processes, but have been manifestly preparing for weeks, if not months. Tuberculosis is not due to cold and its progress, contrary to popular belief, we know is not fostered by cold weather. Actual experience has shown that for most cases of incipient tuberculosis a cold but dry climate is distinctly more favorable than a warm one, especially if the latter be also more or less moist. When Dr. Trudeau first proposed the Adirondack region for consumptives he was considered by many medical men to be riding a dangerous hobby, but time has amply shown the wisdom of his suggestion.

The cold of our city climate, then, is no contra-indication to its wholesomeness for consumptives. There are so many personal inconveniences and discomforts in addition to the serious discouragement attached to removal of patients to a distance, that their home-treatment becomes an alluring temptation. If there is reasonable assurance that directions will be followed it seems not only justifiable but advisable to try home-treatment for awhile. The index of failure in treatment is continuance of loss of weight. If patients gain in weight there is every assurance of their progressive improvement. Certain cases present actual contra-indications to removal to elevated regions. As Prof. Burney Yeo said at the Tuberculosis Congress, patients with laryngeal complications are never benefited by a mountain climate, while, if emphysema is present as well as tuberculosis, elevation does harm rather than good. Where intestinal complications or any renal disease exist, they are positive contra-indications. A climate having very wide diurnal variations is ideally bracing for consumptive patients generally, but leads to frequent disturbances of circulation that prove irritating to intestinal or kidney disorders for which the maintenance of a continuous equilibrium of circulation is the indication.

Some of the London experience with absolute open-air treatment in the home climate is suggestive. Dr. Hector Mackenzie in the Tuberculosis number of the *London Practitioner* (July, 1901) relates the details and results of cases kept night and day on an open hospital balcony. One

of his patients had suffered severely from that always-trying symptom, repeated hemoptysis. Another had suffered tortures from tuberculous pleurisy. In this latter affection, the continuous exposure of the patient to all the disagreeable vicissitudes of the London spring without harm is especially noteworthy. In the hemoptysic patient, improvement did not begin for a month, but then was rapid and satisfactory. The patient gained twenty-eight pounds in a few months. The case of pleurisy began to improve after the fourth day. Despite cold nights the patient did not complain of discomfort and slept well. The gain in weight soon restored her to good health and her painful pleurisy was felt no more.

In a word, recent contributions to the literature of tuberculosis point to the fact that the successful home-treatment of tuberculosis may be entirely feasible in cases where from extreme sensitiveness to cold or marked tendency to catarrh or other physical contra-indications in lungs, or digestive tract, or kidneys, a sojourn in elevated regions is unsuitable. If there be added the number of patients in whom the lack of means or the danger of depression from nostalgia makes removal especially difficult and problematic in its effect, it will be seen that there is a large field for the development and employment of properly-managed home-treatment for tuberculosis.

METABOLISM IN DIABETIC COMA.

THE acid-intoxication theory of diabetic coma is of comparatively recent origin. The high grade of urine acidity in diabetes, together with the fact that the same is due to the presence of inorganic acids, having been established in 1884, it would seem but a step to the comprehension that such must signify an intense acidosis of the system which in turn must stand in direct causative relation to the symtomatology of the disease. It was not, however, until 1899, largely through the work of Magnus-Levy and Herter, that the definite relation between acidosis and diabetic coma was fully appreciated. Since that time the acid-intoxication theory of diabetic coma has steadily added to the number of its adherents until to-day it finds practically universal acceptance. (E. P. Joslin, *Journal of Medical Research*, Nov., 1901.)

Practical therapeutic deductions have not been wanting, and it has been abundantly proven that the administration of a sufficient amount of alkali is, in many cases, able to overcome the acidosis, temporarily at least, thus ameliorating the condition and prolonging, if not saving life. Although the work hitherto done along these lines has laid the foundation for an accurate understanding of the metabolic changes present, there are many points which remain obscure. In most instances the immediate pre-coma period is characterized by the presence of large amounts of inorganic acids in the urine. Such, however, is not always the case. Exceptionally these acids are not demonstrable until twenty-four hours preceding coma. In such cases the explanation of the non-presence of such acids is not entirely clear. It is known, however, that the oxidation of inorganic acids requires the simultaneous oxidation of carbohydrates. In accordance with this fact inorganic acids appear in the urine of healthy individuals when carbohydrate food is entirely withdrawn; they however disappear when a small amount of such food is taken. It seems probable, therefore, that in the exceptional cases mentioned the body is able to oxidize a certain amount of the carbohydrates present and that coincidently these acids are likewise oxidized in the system and do not appear in the urine. This view does not, however, explain all cases.

Of late much stress has been laid upon the prognostic value of the frequent determination of the amount of inorganic acid present in the urine. It should be remembered that the presence of these acids in large amounts is highly significant of impending coma, but that unfortunately the converse does not hold true. In other words their absence does not uniformly warrant a favorable prognosis. The most ready and a sufficiently accurate manner of ascertaining the degree of acidosis present is by the administration of sodium bicarbonate. In healthy individuals the exhibition of ten to fifteen grams of this substance gives rise to a neutral or alkaline urine. In diabetics one to two hundred grams are often so required. The estimation of the amount of ammonia present in the urine is also a measure of its degree of acidity, but is not a safe guide when alkali or sodium bicarbonate is being taken.

During coma, in addition to the endeavor to neutralize the acids present in the system, every effort should be made to favor their excretion. It has been found that the amount of urine and the amount of acid excreted are directly proportionate to each other. We have thus a point of immense practical value and one of the cardinal

factors in the successful treatment of diabetic coma. Every effort should be made to produce abundant diuresis.

It is evident that in diabetic coma normal metabolism is markedly perverted. Certain groups of substances which once served as nutrients are no longer of avail, but are changed into products which are not oxidized and hence appear in the urine. We are at present acquainted with one of these groups—the inorganic acids. Their presence in large amounts in the body is harmful, not because of any specificity, but because of the degree of acidity produced. Nature endeavors to overcome this acidity by the increased production of alkali and increased excretion. The assistance of Nature in its endeavors forms the keynote of the proper treatment of this condition.

REPORT OF THE ST. LOUIS TETANUS COMMISSION.

THE special report of Drs. B. Meade Bolton, C. Fisch and E. C. Walden, who were appointed a special committee to investigate the occurrence of tetanus from the use of the diphtheria antitoxin in the city of St. Louis, is to hand in the *St. Louis Medical Review* of November 23d.

The conclusions reached are in substantial accord with the report made by our special correspondent given in the issue of November 9th, save that it appears that some serum prepared on September 30th was distributed and, moreover, that serum prepared at that time was bottled as serum prepared on August 24th. This accounted for the contradictions of dates in the early reports.

The results of this investigation may be summarized as follows: The diphtheria antitoxin prepared by the Health Department of the City of St. Louis, and dated September 30th, and some of the serum dated August 24th, was the cause of the recent deaths from tetanus in the cases where this tetanus was used. This antitoxin was sterile, but contained the toxin of the tetanus bacillus in considerable amount.

There were two different sera issued under the date of August 24th, one portion not containing the tetanus toxin and characterized by other properties, while the other contained the tetanus and was identical with the serum bearing the date of September 30th.

The most important result arrived at is the positive demonstration that the toxic serum dated August 24th and that dated September 30th are identical. From this it is concluded that the serum of September 30th was issued without having been tested by the proper methods, and that a part of it was filled into bottles bearing the date of August 24th, and were furnished with labels having previously been stamped with this date. The Committee was justified in drawing this conclusion from two observations. First, that the serum of September 30th was issued before there was time to have performed the simple tests necessary to determine the antitoxic potency of the serum. Second, in the same way, serum dated October 23d came into the possession of the Committee on November 1st. This serum had been issued to physicians by the Health Department, and by them returned to the coroner. It is obvious from this that no animal experiments could have been made with this antitoxin. As this was the case with the serum of October 23d, it is the natural inference that the serum of September 30th was issued in the same way.

It is denied that there was any possibility of latent tetanus having existed in the horse "Jim" from August 24th to September 30th, as no well-authenticated cases have been reported in which the incubation period extended over seven days, in experiments directed to test this point. The period of incubation cannot be determined from clinical observation, from the nature of the case.

It therefore follows from this that the serum drawn on August 24th was free from tetanus, but that the serum of September 30th was drawn during the period of incubation, and had it been tested upon animals it must necessarily have revealed its toxic properties.

From the foregoing facts the Committee is forced to conclude that the diphtheria antitoxin prepared by the City Health Department has been issued before it was possible to have obtained results from the absolutely necessary tests. Had these tests been performed, the results upon animals would have been such that the serum would not have been dispensed, and the cases of tetanus forming the basis of this report could not have resulted.

Further comment on this report is needless. The error was one of human fallibility and is freely exposed. No effort is made by the authorities to hide the unpleasant fact that there was carelessness in the manufacture of this particular lot of serum, and, much as the accident is to be deplored, the experience will not be without its profit for those who may come after.

ECHOES AND NEWS.

NEW YORK.

New Columbia Trustee.—Dr. E. L. Trudeau, P. & S., 1871, was elected trustee of Columbia University to fill the vacancy caused by the death of Dr. W. H. Draper.

Colored Hospital.—The managers of the Colored Hospital held the Graduating Exercises of the Training School for Nurses of the class of 1901 at the Academy of Medicine, Friday evening, December 6th. Dr. T. Gaillard Thomas delivered the address.

St. Mary's Hospital, Brooklyn.—The annual promenade concert and reception in aid of St. Mary's Hospital was held on Tuesday evening, the 26th ult., at the Pouch Mansion. There was a large attendance, and a considerable sum was raised. The proceeds will be applied to the relief of the sick and crippled children in St. Mary's wards.

Consumptive Children Excluded.—There is much indignation among the parents of children attending Public School No. 108 in Brooklyn, regarding a little girl said to be in the last stages of consumption. The parents desire that the sick child be excluded from school privileges lest their children become affected with the disease. The Board of Education when notified referred the case to the Board of Health, saying that the latter board had entire responsibility for the health of school children. The case, however, at this writing had not yet been reported to the Sanitary Bureau.

New York Academy of Medicine.—On Monday, December 9th, the Section on Surgery will meet. Dr. Lilienthal will present a patient recovered after an operation for pancreatitis and Dr. Erdmann one recovered after operation for intussusception. Dr. C. N. Dowd will read a paper on Gangrenous Intussusception in a Child of Four Years; Intestinal Resection; Recovery. Dr. George Woolsey will read a paper on Acute Pancreatitis with a Report of Three Cases.

On Wednesday, December 11th, at the meeting of the Section on Otology, Dr. B. A. Randall will present a paper entitled, Some Notes on the Teaching of Otology, with Lantern Slide Demonstrations.

On Thursday, December 12th, papers on Malnutrition will be read before the Section on Pediatrics: Dr. C. G. Kerley, on Syphilis; Dr. F. M. Crandall, on Tuberculosis; Dr. A. Jacobi, on Rachitis; Dr. L. E. LaFetra, on the Importance of a More Thorough Knowledge of the Chemistry and Physiology of Food, and Dr. S. H. Dessau, on the Action of Heat upon Cow's Milk as an Infant Food. Discussion by Drs. W. H. Porter, H. D. Chapin and J. Downing.

Dr. Martha Wollstein is recommended for election as resident fellow of the academy.

Medical Education in New York.—The report of the College Department of the University of the State of New York for the year ending July 31, 1901, will show that, during the nine years in which the medical licensing examinations have been held, 6,349 physicians have been examined, of which number 78 per cent. were licensed. During the last year, in medicine 671 regular candidates, 58 homeopaths and 20 eclectics have been examined. There were no failures in the case of graduates of six of the New York medical schools, and in only two of the New York schools did the percentage of accepted candidates fall below 90. In consequence of the number of requests received psychology will be given in the January, 1902, examination.

Appointment of Dr. Bailey.—Dr. Pearce Bailey was appointed instructor in neurology at Columbia University at the meeting of the Board of Trustees last Monday.

State Medical Society.—The annual meeting of the Medical Society of the State of New York will be held at Albany, New York, Tuesday, January 28, 1902, and will continue for three days. The scientific part of the program is being prepared by the Business Committee, which consists of Dr. Nathan Jacobson, 430 South Salina street, Syracuse; Dr. George R. Fowler, Brooklyn, and William C. Krauss, Buffalo. Members and delegates desiring to read papers will please communicate with the Chairman of this Committee. A rebate will be given by the railroads to members and delegates attending this meeting, but it is necessary in order to obtain this rebate that a certificate be obtained from the ticket agent at the starting-point, which the agent will give for the asking.

Medical Experts Fees.—Corporation Counsel Whalen, in a recent letter, has advised Comptroller Coler not to pay medical experts for services rendered at the request of Commissioners appointed to examine into the mental condition of persons indicted for crime until the power of such commissions to employ such experts shall have been judicially determined. Many claims of such Commissioners have been filed with the Comptroller, and include salaries of Commissioners, salaries of clerks and stenographers, and other expenses, as well as the fees of experts in lunacy.

PHILADELPHIA.

Wills Eye Hospital.—Owing to the veto by Governor Stone of the small appropriation voted this hospital by the State, it may be necessary to cease granting the privileges of that institution to patients from outside the city. The hospital is supported by an income of $19,000 per year and 14,000 persons are treated annually. A sum to finish a partly-completed contagious ward and to purchase $2,000 worth of new instruments must now be taken from the maintenance fund for next year.

Quest for New Municipal Hospital Site.—Dozens of sites have been offered the Committee on City Property, but none has yet been chosen.

It is believed that there is a strong tendency on the part of the city authorities to push the Petty's Island scheme in spite of objections from this city and Camden. The City Solicitor has given the opinion that it is unlawful for the city to take title to and erect a hospital and have full control of the same outside of the county line. This would bar the use of the island in question.

Tetanus Occurring During Vaccination.—Dr. Robert N. Willson read a paper on the above subject at the meeting of the County Medical Society, November 27th. He takes exception to the use of the shield, stating that it is not only of no advantage, but that more than anything else it conduces to tetanus. He uses an aseptic gauze pad, covered with cotton, and a bandage, this dressing being changed twice daily. A covering of lint and zinc oxide is used when the vesicle ceases to discharge. Dr. Willson has treated several cases of tetanus during the recent epidemic and finds that no one remedy is worthy of special confidence, antitoxin and carbolic acid both failing frequently.

Treatment of Tetanus.—Dr. F. A. Packard stated that the only cases of tetanus he had seen recover were those treated by injections of carbolic acid, every case treated by antitoxin having died. Twenty-five grains of the drug may be given in twenty-four hours with no symptoms of poisoning. Whether or not it possesses a specific action against the toxins of tetanus, he is convinced that its use is the one way of curing tetanus if cure be possible. Dr. Packard uses vaccine shields and believes that they do harm only when so tight as to obstruct the circulation of blood or lymph. All the very sore arms under his observation were those on which he had used a gauze dressing, it seeming to act as a mechanical irritant. The shield is to be preferred if it be removed at the end of forty-eight hours.

Relation of Bovine Virus to Tetanus.—Dr. Joseph McFarland discussed this topic. He has been making a special study of the subject of tetanus occurring during vaccination and, although not yet ready to make a full report of his investigations, he deduced some very interesting facts. He has found but five cases occurring during the early years of vaccination, one in 1853 and the remaining four in 1882. With this goes the fact that before 1882 human virus was almost solely employed. Now that bovine virus is almost exclusively used and a large number of cases of tetanus have recently occurred, the connection between glycerinized lymph and tetanus is suggested. Investigations show that in some outbreaks there is a regularity between the use of certain vaccines and the occurrence of tetanus. A careful study also reveals the fact that cases have occurred in bunches, as if a certain batch of vaccine material had been implicated in their production. As before stated, positive conclusions have not yet been reached, but from all the facts observed Dr. McFarland believes that the possibility of infection from virus now employed is not so remote as believed by many physicians.

Smallpox Again Increases.—During the week ending November 30th there were reported 116 new cases of smallpox in this city. This record is surpassed only by the statistics of the smallpox epidemic of 1876. Deaths during the same period numbered 14. The northeastern and northwestern portions of the city are mainly affected. The conservative *Public Ledger* in an editorial, after speaking of the necessity of widespread vaccination, says: "Universal vaccination cannot be secured unless the people are thoroughly aroused to the danger which confronts them. They are not so aroused as yet, because many of them have been lulled into a feeling of false security by the policy of silence that is being pursued by the Board of Health. What is needed in this crisis is the fullest publicity. The number of new cases should be given out daily. It is folly for the Bureau of Health to pursue the policy of silence any longer; it is confronted with the probability of a serious epidemic, and one of the best means of mastering it is to make the public acquainted daily with the exact situation."

Death of Dr. Essig.—Dr. Charles J. Essig died of pneumonia December 2d. Dr. Essig was a graduate of the Philadelphia Dental and of Jefferson Medical Colleges. After serving as instructor in several local dental colleges Dr. Essig organized the Dental Department of the University of Pennsylvania and was for many years its dean.

Water Measles.—A disease known by the above name in the Philippines and supposed to have been brought from those islands has made its appearance in New Jersey and in Stroudsburg, Penn. The eruption is a resemblance of water blisters, which finally burst. The eruption is accompanied by fever.

Report of Camden Board of Health.—The committee to investigate the recent outbreak of tetanus has made a report embodying the following points: Samples of all the makes of vaccine employed in Camden have been tested by the State bacteriologist and found to be entirely free from tetanus germs; the infection in each case of tetanus resulted from neglect on the part of the patient to give their vaccination proper attention; one case of tetanus occurred after a gunshot wound; the tetanus cases in Camden are to be explained upon atmospheric and telluric conditions which have prevailed during the past six weeks, there being dry weather and high winds; vaccination is harmless and should be insisted upon by physicians as an absolutely necessary procedure for the prevention of smallpox.

CHICAGO.

Electro-Medical Society.—This Society has taken steps toward joining hands with the State Board of Health in charging alleged medico-electrical experts with violating the State law which provides that only registered physicians

shall treat disease. The Society seeks to propagate the use of electricity as an aid to medical treatment and the use of the X-ray as a therapeutic agent. People who know nothing of medicine and are not registered physicians, it is said, have been treating serious diseases. It is proposed to stop this and to place the use of electricity and of the X-ray on a strictly professional basis. Officers for the ensuing year were elected as follows: President, Dr. G. G. Burdick; First Vice-president, Dr. A. W. Baer; Second Vice-president, Dr. Emil H. Grubbe; Secretary and Treasurer, Dr. R. H. Street.

Notable Gathering of Scientists.—Prominent scientists from all parts of the United States will attend the midwinter gathering under the auspices of the Field Columbian Museum, the University of Chicago and Northwestern University. The convention will begin December 31st. The meeting was brought about largely through the efforts of Dr. John A. Dorsey, Curator of the Field Museum. Among the societies which will be represented will be the American Naturalist Society, American Society of Morphology, American Physiological Society, Association of American Anatomists, American Psychological Association, Society of American Bacteriologists, and the Anthropological Section of the American Association of Anatomists.

Investigation at Dunning.—Drs. Hugh T. Patrick and Frank Billings are the medical members of the committee appointed by the President of the County Board to investigate the County institutions at Dunning. The committee has already begun its work.

Diphtheria in Evanston.—It is said that this disease is causing some alarm in this suburb. Sixty cases have been reported in the last two months.

Treatment of Pneumonia.—Dr. Edward F. Wells, in his presidential address, at a meeting of the Chicago Society of Internal Medicine, held November 27th, discussed this subject. Among other things he said: "The fact that pneumonia is increasing in prevalence is *prima facie* evidence that prophylactic measures have either not been adopted or have proven unavailing. Pneumonia is caused by the pneumococcus. The pneumococcus will not grow in acid media, and in its growth it produces an acid and an albumose, which in turn probably cause the death of the organism. Its different strains vary in virulency, and somewhat in biological characters. The pneumococcus is present in some part of the upper respiratory passages in a very considerable proportion of healthy persons, and it is probable that pneumonia is ordinarily due to the aspiration and slipping down into the alveoli of some of these ready-at-hand cocci." All discharges from the respiratory passages should be treated in such manner that they cannot gain access in the form of spray or dust to the respirable air. Pneumonic sputum should not be allowed to become dry, but should be burned. The tenacious, clinging expectoration should be carefully removed from the lips, teeth, etc. The mouth, throat and nostrils should be cleansed at proper intervals with an acid solution, followed after a few minutes by an agreeable mildly-alkaline antiseptic solution. With reasonable care along these lines it is probable that the infected person may jeopardize only very slightly the safety of those who come in contact with him. The chief element of danger in pneumonia is from the introduction of the pneumococcal toxins into the fluids of the body. This is one of the most powerful of the bacterial toxins, as may be inferred from the profound chill and raging fever which follow the initial introduction into the system of an infinitesimal quantity of the poison, and this diluted almost beyond conception. That the system becomes less impressionable and more resistant to the toxin as the malady advances is evident from the fact that progressively-increasing quantities of toxins absorbed do not produce correspondingly more pronounced effects. The essayist then discussed capillary paresis, leucocytosis, and antipneumococcic sera. With reference to the latter, he said that animal experimentation with dialyzed toxins, the glycerinated extract of dead and dried bodies of the pneumococcus, the serum from pneumonic patients, and the serum from animals, which have been subjected to long-continued pneumococcal inoculations, have, so far, been inconclusive as to their prophylactic or curative powers, and clinical experience with the various sera which have been placed upon the market has been equally inconclusive. He was free to say, however, that he has witnessed phenomena following the hypodermic injection of such sera which lead him to believe that they are agents of real and beneficent power. In one case the injections were followed by the reappearance in the blood, while the disease was yet at its height, of those harbingers of subsiding toxemia, the eosinophile leucocytes. Analogy leads us to believe that a useful antipneumococcic serum may be produced.

He believes that the employment of oxygen inhalations, begun early, certainly at the very beginning of a slight but steadily-progressive increase in frequency and shallowness of breathing, frequently and freely given, is a useful measure, and is one of the many things which may sometimes save a life which might otherwise be lost. He uses it with strychnine, caffeine, camphor, morphine, etc., each of which agents, properly, employed, is of the greatest value.

Pleurisy with Permanent Pneumonic Induration.—Dr. Robert H. Babcock, at the same meeting, reported four cases of this disease and propounded the query, Are they tuberculous? In these four cases he was impressed by several quite peculiar circumstances. First, the patients did not seem very ill and, judged by the mildness of the pyrexia and other symptoms, their illness seemed to be of a low grade of activity. All but one appeared to have recovered and are now in good health. Second, to judge from the extent and degree of dulness, one would have

expected considerable effusion; yet the insignificant degree of pressure-effects and the result of tapping demonstrated that the exudate was poor in serum and rich in fibrin, and that the degree of dulness and the quality of the respiratory sound at the apex could not be due to pressure or fluid in the lung, since the amount of fluid was in reality small. Third, one patient has since died of pulmonary tuberculosis, and in two of the others the personal and family histories were those of tuberculosis. Fourth, examination of the sputum, when any could be obtained, which was not always the case, failed to reveal tubercle bacilli. It is to be regretted that the serum was not obtained in such a manner as would have possibly thrown light on the nature of the cases had it been injected into animals and subjected to a culture test. He could only conjecture concerning the pathology of these cases, but the only conclusion that seems to explain them is that they were tuberculous. He believes that in three instances at least there had existed a small tuberculous focus at the apex, and that from this focus bacilli were carried by the lymph stream in a reverse direction to the fluid cavity. They there set up a pleuritis which was chiefly fibrinous. From this pleuritic exudate germs were carried to other parts of the lung, and there excited a pneumonic inflammation which was interstitial and tended to fibrosis. In this way the upper lobe, as well as the pleura, was involved in the process, and this combination accounted for the physical signs and subsequent findings after a lapse of many months. Of course, this explanation lacks the verification of postmortem examinations, but the well-known action of tuberculosis makes this explanation reasonable.

Plastic Operation for Shrunken Orbit.—Drs. Henry Gradle and M. Ritter presented a patient in whom a shrunken orbit had been successfully enlarged by plastic operation. The injury was done by molten steel, which destroyed the eyeball and burned the lower lid. Dr. Ritter had enucleated with normal healing. But when the patient returned half a year later to get a glass eye, the orbit was contracted and the inferior cul-de-sac so nearly obliterated that a glass bead 16 by 8 millimeters could scarcely be inserted and could not be retained. A transverse incision was made into the cicatricial tissue from internal to external canthus, and the dissection extended until a normal depth of inferior cul-de-sac seemed established. The wound was lined with Thiersch grafts of epidermis from the arm, which were retained by gauze packing. There was uneventful primary union, without any sloughing. Although the grafts were over an inch in length and nearly three-quarters of an inch wide, the first operation proved inadequate. The same procedure was repeated on the same scale twice at intervals of four weeks, each time with perfect union. The patient now wears an ordinary-sized eye with comfort. Dr. Gradle has previously had equally good results with Thiersch grafts in similar cases of less severity, while trials with Wolfe-Krause flaps in another instance had not given satisfaction.

GENERAL.

Insurance at Giessen University.—Giessen University insures its students against accident, paying $3,000 in case of death. Medical, chemical and veterinary students pay 20 cents a term for insurance; for the others no charge is made.

Woman Physician Appointed in Russia.—Dr. N. Sieber-Schumow has been temporarily appointed to fill the place of the late Professor Nencki as head of the department of Biological Chemistry in the Imperial Institute of Experimental Medicine at St. Petersburg.

Tuberculosis in Cleveland.—An investigation into the health conditions of this city has developed the fact that one out of every fifty inhabitants is suffering from tuberculosis. The investigation was made by the city authorities and Dr. B. G. Hannum. Steps are being taken to prevent the spread of the disease. The ordinance prohibiting spitting in street cars is to be enforced and clubs are being organized by the citizens to aid the authorities.

Suits Follow St. Louis Tetanus Cases.—Seven heads of families whose children died of lockjaw following the administration of antitoxin for diphtheria and four whose children were stricken with tetanus, but recovered, have announced their intention of suing the city for damages. They will base their suit on the Coroner's verdict, which found the city Health Department guilty of negligence in the manufacture and distribution of antitoxin.

British Medical Temperance Association.—A meeting of this Association was held at the London Hospital on November 15th. Professor F. Sims Woodhead presided. Dr. J. J. Ridge, in pointing out the advantage of total abstinence, said that we are all total abstainers from something or other, such as opium; and referred to the statistics furnished by sick benefit and life insurance societies, which proved that the total abstainer from alcoholic beverages had on the average less disease, more rapid recovery, and longer life. A very large number of medical students were present and took part in the discussion.

Plague at Honolulu.—A recent letter from Honolulu gives news of an alleged epidemic of bubonic plague at that port, reports of which have been carefully suppressed by the authorities up to the present time. The disease has made alarming headway among the Asiatics at Honolulu, and preparations are now being made to quarantine the port against the world, the embargo to go into effect next week. Twenty-three cases are positively known to exist, for this many plague patients are now at the Kalihi detention camp. This camp is guarded night and day. Fourteen of the known cases are Japanese and nine are Chinese. The Honolulu papers are not allowed to print any particulars concerning the plague.

Health Resort Problem.—The problem of housing and caring for the consumptives and

other invalids by whom San Antonio, Texas, is overrun is becoming serious. With the approach of cold weather in the North the influx of the sick has continued until boarding houses, hotels and the hospitals are filled to overflowing, and still the streams keep coming. If the invalids had money new hotels and boarding houses would be built, but the majority of San Antonio's transient population is composed of patients of small means or none. A movement is on foot to raise a fund to build a large free hospital to supplement the work of the City Hospital.

Lead-Poisoning in the English Potteries.—The new special rules proposed by the British Home Office for protecting the lives and health of the pottery-workers have met with a varying fate in arbitration. Manufacturers remain, for the present at least, absolutely free from official interference so far as process is concerned; the use of raw lead is still permitted them, and the percentage of soluble lead yielded by their glazes is a matter for their own consideration and consciences. The special rules of 1898 first introduced the compulsory use of fans for the removal of poisonous dust; workers were compelled to wear overalls and the manufacturers were compelled to provide better washing facilities. Since then there has been a remarkable diminution in the number of cases of lead-poisoning.

Another Open-Air Colony for Tuberculosis.—A sanatorium for the treatment of tuberculosis established near Plymouth, Mass., goes even further than the colony of consumptives living in tents near Denver, to which the MEDICAL NEWS referred last week. The patients at the Plymouth colony live in little shacks about twelve feet square, of which three sides are constructed of wood and the fourth side consists of a screen which is pulled down only in rainy weather, perfect ventilation being thus assured. The main feature of the open-air treatment is the sun-bath. On the top of the sanatorium proper, which was once a colonial residence, a large open space has been arranged, fitted with cots and lattice work. Here the patients are compelled to lie naked for a certain length of time every fine day, turning their bodies about so that they may receive on each part the direct rays of the sun. The whole cuticle of each patient is soon as tanned as are the neck and arms of a summer yachtsman. Following the sun-bath the patient is made to undergo a needle-bath, the temperature of which is regulated by the operator, ending with a sluicing down with cold water at a forced high pressure. A rub-down comes next, leaving the whole skin in a glow, and then the patient is dressed and sent outdoors. Very little medicine is given, the bill of fare is liberal and the patients are permitted to eat almost anything they fancy. A large vegetable garden is connected with the sanatorium. Patients are not allowed to visit one another in their rooms, and the rule against expectoration is rigidly enforced. This institution is not intended for advanced cases, but merely for incipient ones, which the managers declare can be treated in such a manner as to put new vigor into the patient and send him home with renewed interest in life.

More Deaths from Lockjaw.—Three more deaths from lockjaw have occurred in Camden, N. J., just when the Board of Health and the local physicians believed all danger was over. All three deaths are of children and cases not before reported. The vaccination in each instance was performed at a different place and no two were treated by the same physician. In all three, tetanus antitoxin was used with apparently good results, the jaws becoming loosened and convulsions suspended, but in each instance there was a recurrence of the spasm and death came suddenly.

The Bubonic Plague.—A telegram from the Governor of the Cape of Good Hope reports that for the week ending November 13th the only cases of plague at the Cape occurred at Port Elizabeth, where there were five cases with three deaths. At Mauritius there were 83 cases and 56 deaths. Liverpool has been declared free from the plague, no fresh cases having been reported during the past ten days. Glasgow is now officially declared free from the plague, no new cases having been reported for three weeks. The Central Station Hotel, where the original patients were employed, has been thoroughly disinfected and is now open for business. The mortality from the plague in India still runs high, being between 8,000 and 9,000 deaths a week. The city of Calcutta has at last awakened to the vile sanitary condition not only of the native quarter, but of the business and residential districts as well. The Health Department has now divided the city into four districts, each under the supervision of an engineer with a corps of sanitary inspectors, who will to a large extent work independently. Model dwellings are being erected for the poor, but it is doubtful whether they will prove successful. The entire drainage system, hitherto remarkably defective for a city of its size, is to be repaired and extended, and the inauguration of a continuous water-supply is contemplated. Fifteen miles of wide new streets are to be carried through the town, replacing the dark and filthy alleys where cholera and smallpox have always been more or less prevalent.

Lunacy in Ireland.—According to the recent report of the Inspectors of Lunatics for Ireland, lunacy is on the increase in that country and at a rapid rate in proportion to the population. The number of cases discharged as recovered during the year represented 8 per cent. of the average number resident, and the deaths amounted to 8 per cent., as calculated on the same basis. A high rate of mortality from phthisis prevails. The extreme liability of the insane to contract tuberculosis is well known, but the question of building isolation hospitals for them presents special difficulties, such as would not arise in ordinary hospitals. The returns show a rapid

increase in the number of cases of general paralysis, a disease which was comparatively unknown in Ireland not many years ago.

Borax as a Food Preservative.—A fish-dealer of Morecambe, England, was recently haled to court for selling shrimps which had been preserved with borax. The expert evidence given in the case stated that the borax kept the shrimps unchanged in appearance for months, and doubtless was in one sense desirable since it prevented the shrimps from becoming poisonous by undergoing putrefactive change. For the defence it was urged that the dealer soaked the shrimps in salt and water for eight hours and then boiled them. The question arose as to how much of the borax would be removed by this treatment, but none of the witnesses could give any definite information on this point. An analytical chemist said that he did not consider the amount of borax, 95 grains to the pound, excessive, and doubted if a less quantity would preserve the shrimps. Mr. A. S. Barling, surgeon to the Royal Lancaster Infirmary, said that he had given boric acid and borax in doses of 60 grains daily to numbers of patients without any ill-effects. It was suggested that the borax might be of advantage in destroying possible sewage organisms which so often infect seafood caught near shore. The defendant, however, was found guilty and fined the maximum penalty of £20.

Royal Tuberculosis Commission.—The Royal Tuberculosis Commission, which is now in session at Westminster, London, England, has arranged to carry out the experimental part of its work at two farms in Essex, which have recently been placed at their disposal. It is not expected that detailed reports will be made for some time.

The Sensations of Electrocution.—M. André Broca, Professor of Physics, Paris, while experimenting with a Rhumkorff coil received a shock with a powerful current. Fortunately for the Professor, he held in each hand a very large electrode, to which circumstance he owes his escape from burns. On receiving the shock he was thrown to the ground, felt as though his heart had ceased to beat, tried to call to his assistant, but could not articulate. He had no feeling in arms or legs, and the walls of the room seemed to have turned green and inclined obliquely. When the current was cut off the Professor was assisted to rise and was able to walk slowly, though feeling as if he possessed but a head and two legs; he tried to move his arms, but they were paralyzed. When the arms were sharply pinched he felt nothing; while, on the contrary, his fingers were hyperesthetic. He was able to walk home and go up five flights of stairs without much discomfort, and after two days he felt perfectly well. It is noteworthy that after receiving the shock M. Broca retained perfect consciousness and said to himself that he was dying.

Obituary.—Dr. Henry Clarke Houghton, one of the best known homeopathic physicians in this country, died on Saturday afternoon at his home, 7 West Thirty-ninth Street. He was sixty-four years old, was born in Roxbury, Mass., and after a business education at the Ridgewater Normal School, began his medical studies in the Maine Medical School. Later he went to the Portland School of Medical Education, from which institution he entered the New York University, where he was graduated with the degree of M.D. in 1867. When he died Dr. Houghton was professor of physiology in the New York Homeopathic Medical College and in the New York Medical College and Hospital for Women. He was dean and professor of otology at the New York Ophthalmic Hospital and president of the New York State and New York County Homeopathic Medical Societies.

Dr. Henry Sutherland, for many years lecturer on insanity at Westminster Hospital, London, died November 19th.

Dr. John Connell, of Peebles, Scotland, well-known classicist and scholar, died November 2d.

Dr. Wm. G. N. Manley, Surgeon-General, British Army, Medical Department, died November 16th. For his services in the Franco-German war he received the Iron Cross. He also served in the Afghan, Egyptian and Zulu wars, receiving many honors for meritorious services.

Dr. David McDiel, Surgeon in the United States Penitentiary at Fort Leavenworth, Kan., died last week from the effects of a stroke of apoplexy. He was forty-one years old.

Dr. Isaac Newton Evans of Hatboro, Penn., who was a member of the Forty-fifth, Forty-eighth, and Forty-ninth Congresses, from the Seventh District of Pennsylvania, died suddenly of heart disease at his home Wednesday, aged seventy-four years. He was born in Chester County, Penn., and was graduated in medicine from Bowdoin College, Maine, and Jefferson Medical College, Philadelphia. Besides being a member of the American Medical Association, he was once President of the Doylestown (Penn.) Bank, and later of the Hatboro National Bank.

Sir William MacCormac, Bart., president of the Royal College of Surgeons, died suddenly from heart disease at Bath, England, Dec. 4th. His health had caused anxiety for some time past. Sir William MacCormac was born in Belfast in 1836, being the son of a physician, Dr. Henry MacCormac. He was honored by many societies in his life for his services to science. He received his education in Belfast, Dublin and Paris. After making a reputation as a surgeon in the hospitals of the United Kingdom and winning the gold medal of the Queen's University he saw service at Metz and Sedan in the Franco-German War as surgeon-in-chief of the Anglo-American ambulance, and also during the Turko-Servian War, in 1876. For twenty years he was one of the senior surgeons and lecturer at St. Thomas' Hospital, London, as well as consulting surgeon and examiner in many other institutions. In consideration of his services as secretary general of the International Medical Congress, held in Lon-

don in 1881, the Queen knighted him. In 1897, at the Queen's Jubilee, he was made a baronet and appointed surgeon-in-ordinary to the Prince of Wales, now the King, whom he attended when suffering from the effects of an accident. Many foreign governments honored Sir William. When the Boer War broke out he went with the British Army to Africa, and was present during the early fighting in Natal. He was the author of a great number of treatises on various subjects, most of which were contributed to different medical journals or societies. Among these may be mentioned: Surgical operations, Antiseptic Surgery, Notes and Recollections of an Ambulance Surgeon. In 1899 he delivered the Hunterian oration before the Royal College of Surgeons.

CORRESPONDENCE.

OUR LONDON LETTER.

(From our Special Correspondent.)

LONDON, November 23, 1901.

THE "LACNANTHES" TREATMENT OF CONSUMPTION—VIOLET LEAVES AS A CURE FOR CANCER: AN EXTRAORDINARY CASE.

OWING doubtless to the dearth of more sensational matter, the newspapers, as is their wont, have been edifying their readers with accounts of wonderful new "cures" of one kind or another. For the last three months a controversy about the treatment of tuberculosis has raged in the *Times*, which, if it has not been particularly instructive, has at any rate tended to relieve the habitual solemnity of that austere print. It was started by a man of some position in society who is under the impression that his wife was cured of consumption by the treatment of one Alabone, whose name was struck off the *Medical Register* some years ago for unprofessional conduct. Nevertheless he has continued to practise as before, as indeed any one may do here at his own risk. If he does not give himself out to be a legally qualified practitioner, and if no patient actually dies on his hands, the law will not meddle with him. The remedy to which Alabone attributes the success which he claims is *lacnanthes tinctoria*, or redroot, a plant of which our pharmacologists and therapeutists seem to know little or nothing, but which, I see, is said in Gould's *Dictionary of Medicine* to be "popular in parts of the United States as an expectorant and alterative in pulmonary tuberculosis." It would appear, however, that Alabone himself is by no means so thoroughgoing a believer in the virtues of his supposed panacea as the people who put their trust in him have been led to believe. At any rate I have seen a document written by his son, a qualified member of the profession who wears the mantle of which the paternal prophet has been stripped, in which he protests against their treatment being called the "lacnanthes cure." On this it may be remarked that if it is so known, that is entirely the fault of those who have come forward to vaunt its marvelous effects in the public press. The fact is doubtless that the "lacnanthes cure" has had rather more advertisement than is good for it; the constitution of these nostrums is naturally frail, and they do not bear exposure to the searching wind of criticism. It is not surprising therefore that Alabone should now prefer to rest his claims as a discoverer on something a little more occult. Accordingly one hears of a wonderful atomizer by means of which diseased lungs are supposed to be impregnated with sprays of various kinds. As far as one can gather those sprays contain nothing more than creosote, formaldehyde, menthol, and such like substances which have been used for the same purpose by practitioners in all quarters of the globe. A mystery is, however, made of the excipient; moreover, the apparatus is so complicated that it cannot be intelligibly described, and so difficult to manage that it cannot be used except under the personal direction of its ingenious inventor. The whole thing is so transparent a piece of quackery that it would not be worth mentioning but for the unpleasant commentary on the impenetrable darkness of the public mind in regard to medicine which it supplies. Numbers of otherwise sane and decently educated people have come forward to testify to cures of hopeless cases of consumption wrought under their own eyes by Alabone's treatment. The profession is publicly accused by people who ought to know better of persecuting a scientific discoverer, and striving for selfish reasons to "suppress" an infallible remedy. All this in the face of the fact, "gross as a mountain open, palpable," that the supposed specific has never been brought before the profession, and that Alabone has declined to have his method tested in a hospital for consumptives except under conditions which would make the test utterly worthless.

Quite lately a new "cancer cure" has come to dispute the public interest with the consumption "cure." A "lady of quality" (as our great-grandfathers used to say), Lady Margaret Marsham, sister of the Earl of Romney, had been suffering for several months with disease of the throat which was judged by the doctors who saw her to be cancerous. The disease increased to such an extent that she could only with great difficulty be fed through a small tube. There was a large mass of fungating growth on the outside of the neck. A small piece of the tumor was removed from the inside of the throat, and sent to the Clinical Research Association, a body which makes histological examinations for practitioners. The report was that the growth was an epithelioma. The case seemed to be past all surgery, and the old lady's life was regarded as a matter of days. In these circumstances another lady of quality, Lady Mary Ross, intervened and suggested the application of an infusion of violet leaves which she had heard mentioned in her young days as useful in cancer. As there was no hope from any other quarter, the remedy was

tried. The following is the formula as given in an enterprising newspaper:

"Take a handful of fresh green violet leaves and pour a pint of boiling water upon them, cover them and let them stand twelve hours, until the water is discolored and green. Then strain off the liquid, dip a piece of lint into the infusion, of which a sufficient quantity must be warmed. Put on the wet lint hot wherever the malady is. Cover the lint with oil silk or thin mackintosh and change it whenever dry or cold. The infusion should be fresh about every alternate day."

The effect of this application is described by a sister of the patient as having been "almost like a miracle." The external tumor disappeared in a week, the internal disease vanished in a fortnight, and Lady Margaret Masham is said to be now in good health and able to travel and visit her friends. Well, the skeptic may say, we have heard all this kind of thing before; it is the usual fairy tale of marvelous cures which one reads of in the pamphlets of vendors of quack remedies. But the case of Lady Masham differs from these in the important circumstance that all the particulars are fully certified by the testimony of competent medical witnesses. They naturally do not care to come before the public in connection with such a case, but had there been any room for denial of the facts or even for mitigation of their thaumaturgic character, they would certainly have considered it their duty to attempt to enlighten the public on the subject. Lymphosarcomatous tumors have, I believe, been known to disappear completely without any obvious cause; and cancer in aged persons occasionally contradicts what have somewhat arbitrarily been fixed as the laws of its evolution. But epithelioma of a moist cavity like the mouth is usually, as everyone knows, of intense malignancy. The only loophole of escape from the difficult strategical position in which this case appears to place medical science is the possibility of an error in the microscopical diagnosis. The fallaciousness of histological evidence as to the nature of tumors was conspicuously shown in the case of the late Emperor Frederick, and experienced clinicians refuse to accept the microscope as at all times and in all circumstances a perfectly trustworthy guide. In the case in question there is the further possibility that a mistake may have been made in the specimen. In a laboratory where large numbers of specimens are received every day confusion may easily arise as to the source of a particular one; this is known to have occurred in at least one previous instance.

There the case remains for the present; the profession will look forward to a full report from the physicians in attendance at the proper time. In the meantime the public will doubtless pin its faith on violet leaves, and many a sufferer will let his chance of cure or relief slip away by trusting to a useless remedy. I have already heard of one case in which the last hours of a poor woman dying of cancer of the breast were embittered by the disappointment of false hopes excited by the announcement of the violet cure. The wonderful case of Lady Margaret Masham may indeed have evil effects of a very far-reaching kind, for her relative, Lord Romney, is a personal friend of the King. Now, His Majesty in a public deliverance not long ago spoke strongly of the importance of finding a cure for cancer. If he should allow himself to be misled into making any public recommendation of violet leaves as a remedy, the effect among his loyal subjects—most of whom, as Carlyle said, are fools—would be simply disastrous.

TRANSACTIONS OF FOREIGN SOCIETIES.

German.

SURGICAL TREATMENT OF DISEASES OF THE LUNGS.

QUINCKE (Kiel) at the Seventy-third Congress of the German Naturalists and Physicians, held in Hamburg from September 22d to September 28th, read before the Section on Surgery a paper on the surgical treatment of diseases of the lungs in which he made the following points. He said that surgery of the lungs is only in position and, in fact, has but one task, *i. e.*, to provide exit for pus. He then described the mechanical and bacterial factors in pus formation and the predisposition to it which arises from the disease of the mucous membrane of the small bronchi and especially from the loss of the ciliated epithelium of the mucous membrane. Next come the tuberculous processes. The purpose of operating, the emptying of pus-cavities and their replacement by scar tissue, is in the lung very difficult on account of the peculiarities of position and structure. The difficulties are increased by adhesions to the chest wall and by a thickening of the abscess cavity wall so that it is hard and rigid. It is his opinion that an abscess in the lower lobe is more easily treated surgically than one in the upper lobe. If a large cavity exists in the lower lobe, a mere opening of it usually is sufficient. If, however, it exists in the upper lobe, the removal of several ribs may be necessary. Again, after it has been opened an abscess of the lower lobe is more easily emptied by coughing. The most important point of all is the diagnosis and especially with the microscope. The presence of elastic fibers in the sputum is significant, while their absence does not prove the absence of a cavity. Bacteria must be looked for, especially strepto-, staphylo-, and pneumococci. The pus from cavities usually has a foul odor. When the cavity is in the lower lobe expectoration is usually periodic. The classical symptoms of cavity in the lungs occur more frequently in the upper lobe, perhaps because in this situation they are usually of a tuberculous nature. Those of the lower lobe are not usually so large, are commonly crevices which become more or less filled with secretion. Amphoric breathing is very deceptive. The X-ray is of service only when the abscess is large; it then appears as a bright, illuminated area with a dark circle around it. If one now

wishes to operate an important question is, Are there pleural adhesions? Unfortunately for the physician, signs as to this point are unreliable and the adhesions are apt to be lacking when the pus arises from a chronic bronchitis. It is surprising how often one will be deceived at an operation by finding that all adhesions which were expected are absent. The patient is then likely to die from infection of the healthy pleural cavity with the pus. Gangrene of the lung is always a very bad sign, usually because of the septic intoxication which it causes. After the simple acute and the putrid acute abscesses there are the simple chronic abscesses which are caused, usually, by chronic dilatation of the bronchi (bronchiectasis). The chronic putrid abscesses are very hard to recognize and more hard to reach operatively. He therefore comes to the conclusion that acute processes are comparatively favorable and chronic processes are unfavorable for surgical treatment, and that putrescence, whether acute or chronic, is very unfavorable. Abscesses which are caused by foreign bodies promise good results to the surgeon. Tuberculosis is also rather enticing to the surgeon because the results of operation are really quite good. If one cannot actually attack the abscess cavity itself, it is often of great value to render the affected part of the lung inactive by cutting away the ribs and chest wall over it.

GARRÉ (Königsberg) gave a paper on the same subject beginning with the question of adhesions between the pleural surfaces, which are really a necessary help in all operations on the lungs, the absence of which causes distinct dangers. He says, however, if one were to operate only on adherent lungs, one would be very much limited, indeed. Unfortunately, there is no means of recognizing this condition in advance, consequently every surgeon must be ready to reckon with it. The records show that our fears in this matter have been very much greater than necessary. The great danger in pneumothorax lies in the collapse of the healthy lung on the opposite side and then in the likelihood of an infection. In practice these dangers can be very largely avoided by sewing the two layers of the pleura together or by use of gauze-packing, such as Roux has suggested. Abscesses on the level of the diaphragm are usually easy to reach and treat. A recent acute abscess of the lung may often be cured by simple incision and drainage, exceptionally by simple puncture and drainage. It also may be cured by Nature through a perforation into a bronchus, but the majority of abscesses must be treated on the basis of thick-walled abscesses. The conditions of the lung open to surgical treatment are (1) tuberculosis, (2) actinomycosis, (3) abscesses, (4) gangrene, (5) bronchiectasis, (6) ecchinococcus, (7) neoplasms. As to the method of operation there are also three steps, namely, (*a*) thoracotomy, (*b*) pleurotomy, (*c*) pneumotomy, or sometimes (*d*) partial pneumectomy. For thoracotomy, as a rule, mere division of the soft parts is not sufficient. It is therefore better to cut away several of the ribs and always as much of each rib as overlies the affected part. Cutting through the pleura is safe enough if there are adhesions. If there are not, it is often advisable to do the operation at two sittings, employing the interval for the making of adhesions. A careless opening of the chest is essentially dangerous through collapse. If this occurs the treatment is simple and usually effectual. The lung must be seized with some convenient instrument and drawn vigorously out of the wound. In this way pressure on the sound lung is relieved and that organ begins to act, dyspnea disappears and the pulse becomes strong. Similarly, a rapid sewing of the lung to the wall of the chest, combined with gauze packing, may limit or check the inrush of air into the cavity of the pleura. The site of the abscess of the lung is recognized by discoloration and congestion of the pleura, deposits of fibrin or thickening of the pleura, and by changes in the consistency of the lung tissue, especially if it is circumscribed and if it shows elastic tension or fluctuation. For entrance into such an abscess the Paquelin cautery is the best. It is often difficult to find the abscess, therefore, an aspirating needle is of good service. In acute cases, as a rule, nothing further is necessary than to pack the wound and let the abscess cavity heal from the bottom. In the chronic cases, however, such a procedure is useless, because the pus is under no pressure since the walls of the cavity are rigid. For this reason the outer wall of such a cavity must be removed as far as possible and with it the ribs of the chest wall also, so that the soft parts may sink in and adhere to the deep surface of the abscess cavity. If bleeding occurs from the wounding of a large vessel, packing will usually stop it. Tuberculous cavities are for the most part less promising, probably on account of the nature of the disease. The following operations, however, are at times indicated: (1) A wide opening, free drainage, careful packing in case of retention of secretions and all precautions against a secondary infection with the pyogenic germs; (2) free exposure and removal of the diseased part of the lung combined with a thoracoplasty if the abscess is isolated in the lower lobe; (3) removal of the chest wall and the pleura in addition is indicated when there are single discrete cavities at the apices of the lungs. The methods are as follows: (*a*) Resection of the first three ribs without opening the pleural cavity; (*b*) resection of two ribs with pleurotomy and freeing of the adherent lung; (*c*) the making of an artificial pneumothorax. Actinomycosis of the lung has been operated on but eight times. There are no special indications or technic in gangrene of the lung. The prognosis is very much less favorable, because so many of the cases died as a result of secondary deposits—for example, meningitis, abscess of the brain, embolism. Most of the gangrenous areas occur in the lower lobe and usually with a localized empyema. Bronchiectasis has been op-

erated on fifty-seven times, with twenty-one deaths. The difficulty seems to be to reach the disease without damaging the lung tissue overlying it. There have been eight deaths out of seventy-one operations for echinococcus of the lungs. The use of the needle is unsafe, dangerous and unwise. An open operation is the only safe one. The removal of neoplasms of the lung has up to the present time been very rarely done, for the reason that they are always impossible of early diagnosis and they are inoperable after they have progressed. Helferich attacked a sarcoma near the hilus of the lung. The result in this case was fatal, but it suggests that possibly, with an early diagnosis, tumors of the lung will come within the reach of the surgeon.

SOCIETY PROCEEDINGS.

MEDICAL SOCIETY OF RUSH COLLEGE (CHICAGO).

Stated Meeting, Held November 4, 1901.

Stricture of Membranous Urethra, Ascending Gangrenous Inflammation of the Entire Urinary Tract.—Dr. L. Hektoen presented the following specimens: The stricture was located a few centimeters from the meatus. Owing to the obstruction great dilatation of the bladder, the ureters, and the renal pelves had resulted, followed by a violent necrosis and gangrene of the entire mucous membrane, which presented a rough, shreddy, and dirty grayish appearance. There was present in characteristic form the necrosis of the apices of the medullary pyramids seen in recent dilatation of the renal pelvis and attributed generally to pressure. At the autopsy (Dr. Wells) the turbid, foul urine in the bladder was covered by a layer of liquid fat, which probably came from the extension of the destruction to the fat at the hilum of the kidneys. No other source for the fat was found. The patient entered the Cook County Hospital in coma and died soon after, so that exact facts as to the previous occurrences were not obtainable.

Healed Ulcerative Endocarditis of the Aortic Valves.—Two specimens were presented of hearts in each of which one aortic valve showed a large rounded perforation, with smooth but thick and sclerotic margins, about 1 c.m. in diameter, situated in the substance of the valve between the line of closure and the base. There was in each case general sclerosis and deformity of the aortic valves, the result of endocarditis, and in one case an acute destructive process was engrafted upon the chronic. The size, the location, the character of the margins of the perforations, as well as the several scleroses of the valves, led to the conclusion that it concerned healed ulcerative processes which probably had caused valvular aneurism with perforation, and that the specimens afforded anatomical evidence of the healing of ulcerative endocarditis, a possibility the occurrence of which is supported by clinical observations.

Ocular Paresis Presenting Unusual Clinical Pictures.—Dr. F. C. Hotz reported two cases of this affection. Paralysis of any ocular muscles causes a deflection of the visual line of the affected eye (strabismus) and diplopia, which is especially noticeable when the eyes are turned in a direction which requires the coöperation of the affected muscle. Under ordinary circumstances these symptoms (strabismus and diplopia) make the correct diagnosis an easy task. But the diagnosis becomes a perplexing problem if the patient prefers using the affected eye, perhaps because it has much better vision than the other eye, or for some other reason; for as soon as the affected eye is made to look straight the other eye will show a marked strabismus. In these cases the diplopia tests are exceedingly valuable for the diagnosis. To illustrate:

Case I.—Salesman, thirty-seven years old, presented himself with a marked convergent squint of the right eye and homonymous diplopia, which had come on about two weeks ago; cause unknown. Apparently paralysis of the externus of the right eye; but the double images came together when the light was moved to the right, and they separated when it was moved to the left. Homonymous lateral diplopia indicates paralysis of the externus and the separation of the images towards the left points to the externus of the left eye as the affected muscle. And the diagnosis was confirmed by the fact that the abduction of the right was normal, while the abduction of the left eye was greatly restricted.

Case II.—A workman, aged thirty-eight years, was struck over the left eye and six weeks later began to see double. The left eye is straight, the right eye is turned down and in. It looks as if the right eye could not be turned up (paralysis of its superior rectus or inferior oblique), but the diplopia test shows the image of the right eye above and to the right of the image of the left eye, the images separating in the upper field and coming together in the lower field. This test plainly shows that the downward movement of one eye is restricted, hence that the affected muscle is one of the depressors (inferior rectus or superior oblique). Homonymous images point to the superior oblique and the image of the left eye being lower points to the left eye. Hence the correct diagnosis is paralysis of the superior oblique of the left eye.

Sarcoma of Iris.—Dr. A. B. Hale presented a case of a young woman of twenty-two years, from whom he had removed a sarcoma of the right iris. The tumor was detected less than three weeks after symptoms of pain had appeared and had been promptly excised—seemingly in a capsule. The microscope confirmed the diagnosis, and the history of the case, together with the subsequent behavior of the eye, which was perfectly normal six months after the operation, indicated a primary sarcoma of the iris without recurrence. (Microscopical specimens exhibited.)

Penetrating Wound of Eyeball.—Dr. Hale also demonstrated an eyeball nucleated sixty hours after a penetrating wound made with a piece of steel from a hammer. The path of the foreign body through the lens to a bed in the choroid anterior to the equator was plainly visible. The eye had shown no inflammatory reaction, but an X-ray photograph was positive. The speaker referred to the progress made during recent years in diagnosis and treatment without the destruction of the eyeball, of such cases, but in view of this patient's age (77) and the unavoidable danger from delay, enucleation had been promptly done with the full consent of the patient.

Epithelioma of Lip and Cornea.—Dr. Wm. H. Wilder showed a man, seventy-one years of age, who seven years before had had an epithelioma removed from the lower lip. A short time ago, epithelioma developed in the upper, inner part of the right orbit, involving the eyeball. The case is under treatment by Dr. Pusey with the X-rays. He also showed a case of a man, fifty-one years of age, from whose right cornea he had removed an epithelioma. Recovery of perfect vision followed the operation. He also showed two specimens of epithelioma of the cornea, one of which was situated on the limbus and the other wholly within the cornea.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, Held November 5, 1901.

The President, Joseph Collins, M.D., in the Chair.

Portrait of Dr. E. C. Seguin.—Dr. J. Arthur Booth presented to the society a portrait of one of its founders, the late Dr. E. C. Seguin. The portrait was donated by Mrs. Seguin.

Case of Disseminated Sclerosis.—Dr. William M. Leszynsky presented a man whom he had first seen about two years ago. At that time he was thirty-two years of age, and stated that he had been well up to eighteen months previously. At that time he had suffered from occasional diplopia, but it had since almost disappeared. He had had occasionally a staggering gait and speech had become slow. There had also been some difficulty in swallowing. There had been no headache, tinnitus or vomiting, and no bladder symptoms. When first seen he had complained of being nervous and emotional. The examination showed him to be healthy in appearance. There was slight hesitancy in speech, and he was disposed to break into tears on slight provocation. There was slight horizontal nystagmus on efforts at fixation. The fundi and the visual fields were normal. His gait was slightly ataxic, and there was slight dragging of the right leg and a tendency to fall to that side. Both knee-jerks and Achilles reflexes were exaggerated. The examination of the urine was negative. On January 23, 1900, there was slight paresis in the left posterior thigh muscles and slight ataxia in the left upper extremity. In May it had been noted that he was not so emotional, but he dragged the left leg in walking, and the scapulæ were prominent. In December it had been noted that the static ataxia was well marked. In March of the present year there was slight rigidity and dragging of the right leg in walking with tendency to fall to the right. At the present time the pupils are normal; there is slight oscillation of the eyeballs; slight ataxia of the right upper extremity; muscular power is perfect; the speech is slow and uncertain; there is a tendency to fall toward the left with a paraplegic gait. He stands with difficulty on either leg alone. Both knee-jerks are equally exaggerated. A specimen of his handwriting was exhibited. During the past year there had been practically only an increase in the cerebellar incoördination and in the defect of speech. The man presented none of the stigmata of hysteria and was in no way neurasthenic. While he did not present all of the characteristics of disseminated sclerosis there were sufficient symptoms present, the speaker thought, to warrant this diagnosis.

Dr. B. Sachs thought there could be no doubt about the correctness of this diagnosis. It seemed to him a good example of the rather rare cerebellar form of multiple sclerosis.

Tumor of the Pons.—Dr. Joseph Collins presented some sections from a tumor of the pons. They had been taken from a woman, about forty years of age, who had gone to a dance on August 24, 1900, feeling quite well. After dancing a short time, the evening being very hot, she fell and remained unconscious for two hours. She said that her head felt heavy and her feet very light. The next morning on attempting to do housework she found that she was very dizzy and that the left side of the body did not seem to be under proper control. During the next three weeks there had been three transitory attacks of unconsciousness. There was in addition pronounced ataxia of the extremities, but no paralysis. There was also constant vertigo with occasional vomiting, and a feeling of great weakness. She also suffered from a distressing diplopia. After an interval of about a week, during which the symptoms had abated, they had again returned. She had then exhibited inebrious speech and had suffered from nausea on the slightest movement. He had seen her about seven weeks after the original attack, and examination had revealed paralysis of the right abducens and of the right facial with no reaction of degeneration; slight anesthesia of the upper two branches of the fifth nerve with no involvement of the lower branch; also hemiataxia and an exaggeration of the tendon jerks all over. There was not much headache at the time, and no optic neuritis. The woman died with symptoms of bulbar involvement. The lesion had been diagnosticated as an acute softening in the left half of the pons. On autopsy a section through the pons revealed a fluid mass,

but no evidence of a tumor or of an increase in the consistency of the pons. It had only been after hardening and cutting the pons that it had been found that there was an enormous angiosarcoma involving the left etage of the pons. It had pushed over the raphe and infiltrated the right half of the pons as well. This explanation of the lack of symptoms that one would expect with such a condition was that the growth had infiltrated between the motor and sensory fibers of the pons, but had failed to destroy them until a short time before the death of the patient. This was entirely at variance with what was usually observed in a growth of this character. Both acoustic nerves had escaped. At no time had there been any loss of vision, though careful tests had been made to determine this point.

Dr. M. Allen Starr said that last March he had seen in consultation with Dr. Biggs a patient who had presented rather a similar set of symptoms, namely, diplopia and paresis of several of the ocular muscles on both sides without a typical ophthalmoplegia externa. The patient also had anesthesia of one side of the face, and had the kind of speech often observed in bulbar palsy, together with a marked ataxia. There was no choked disk, so that the question had arisen as to whether the condition was one of softening of the tumor. In the absence of headache and choked disk he had inclined to the diagnosis of softening, but the autopsy had shown an infiltrating glioma.

Clinical and Anatomical Report of a Case of Multiple Congenital Deformities.—Drs. B. Onuf and J. Fraenkel presented a joint paper, which was read by Dr. Fraenkel. The subject of the report was a girl who at the age of four years had been admitted to the Montefiore Home on September 22, 1895. The condition of the extremities had been noticed immediately after birth, and it was said that convulsions had occurred frequently during the first year. One year and a half before admission an osteotomy had been done at the hospital for clubfoot. During her stay in the Montefiore Home the girl had been frequently examined by various specialists. The child showed normal cerebration, but the emotions were displayed in an explosive manner. The chief features were: Motor disturbance of all four extremities; asymmetry of facial innervation, the face being drawn to the left; atrophy of the muscles of the forearm and fingers; drop-wrist on both sides; decided diminution in the motor power of forearms and hands; absence of the reflexes of the upper extremities; lower extremities decidedly tapering, and the right one the longer; decided diminution of the motor power of the flexors of the leg and extensors of the foot. On attempting to walk, standing erect, an intense lordosis developed, and there was a cock-step gait. The clinical picture had remained practically unaltered up to the time of her death from diphtheria in June, 1897. The autopsy had been made by Dr. George R. Elliott. There was a subluxation of the hand and forearm forward. The palmaris longus muscle was absent. The ulnar half of the flexor sublimis digitorum was much reduced in volume, while the radial half was composed of fat only. The flexor profundus digitorum was also quite fatty. The flexor longus pollicis was converted into fat and the supinator longus into a band. The muscles of the extensor side of the forearm were all small but were not fatty. The thenar muscles were absent with the exception of the flexor brevis pollicis. There was a dislocation of the left hip upward and forward without any break in the capsule, and the head of the bone was situated forward of the natural acetabulum. The new acetabulum was made up of the thickened capsular ligament, but was otherwise apparently normal in shape. The pelvic and thigh muscles on the side of the dislocation were either fatty or atrophic. Microscopical examination of the psoas and entire muscle mass of the three adductors demonstrated: (1) A reduction in the volume; (2) an increase in the perimuscular fat tissue in some, and interfascicular fatty tissue in others at the expense of the muscular tissue proper; (3) increase of the perimuscular fat, chiefly in the adductor group of the left thigh; (4) increase of the fibrous connective interstitial tissue; (5) a vascular change, chiefly a thickening of the vessel walls; (6) disintegration of muscle fibers in some muscles; (7) preservation of a relatively large number of muscle spindle-cells in the affected muscles; (8) changes in the intermuscular nerve bundles, chiefly a scarcity of the nerve fibers and thickening of the perineurium. No less than 44 spinal nerve roots were examined microscopically and changes were found not only in many anterior, but also in many posterior roots. The spinal cord on gross examination showed an unusually meager development of the cervical and lumbar enlargements. Microscopically there were noted: (1) A shrinkage of the nerve cells of the anterior horns in most levels of the spinal cord; (2) a shrinkage of the cells of Clarke's columns in certain levels; (3) vascular changes and cavities in the gray matter, chiefly in the cervical and dorsal regions; (4) the presence of apparently undeveloped cells at certain levels; (5) proliferation of the ependyma of the central canal in certain regions; (6) changes in the white matter, probably by artefacts. On gross examination the brain exhibited nothing peculiar. Changes of an atrophic order and apparently the presence of certain cells in an embryonic state were noted on microscopic examination. The cells most frequently affected were the larger pyramidal cells. No vascular changes were noted. The authors concluded that in this case the primary cause of the muscular changes were thought to be secondary to the spinal changes. To give some idea of the minuteness and exhaustiveness of the examination made of this case it should be noted that 5,500 sections were made and prepared for examination.

Dr. George R. Elliott presented the right forearm and the pelvis of this child, and demonstrated some of the muscular peculiarities noted in the

report. The head and shaft of the dislocated bone, he said, were normal except that they were small from disuse. The dislocation was upward. The speaker emphasized the fact that this was not the form of dislocation known as a cengenital dislocation of the hip; true congenital dislocation of the hip was almost invariably backward on the dorsum of the ilium. The large ligamentum teres seemed to be only a physiological hypertrophy. There was nothing in the drop-wrists to warrant them being called congenital dislocations; they were rather the result of the pareses. With reference to the peripheral theory, Dr. Elliott said he could not quite understand how this would explain the picking out of portions of muscles and having them replaced by fat while others remained absolutely normal.

Dr. B. Sachs said that having seen the child during life he had never doubted that the diagnosis lay between an intra-uterine poliomyelitis and a developmental defect. The paralytic conditions were secondary to the central change. In spite of the elaborate investigation that had been made the report was not wholly satisfying as to the character of the process. It did not seem to him that developmental defect of the gray matter of the cord could not be excluded by the findings reported. It would have been interesting to follow up the anterior spinal artery and determine if this vessel were properly developed and had functionated properly. If it had not been normal, almost all of the changes in the gray matter described in the report could have been easily expiained in that way. The case seemed to him to offer an example of a possible arrest of the development of the gray matter of the cord. He would like to know whether any unquestionable case of intra-uterine poliomyelitis had been reported.

Dr. V. P. Gibney said that, so far as he knew, this was the first case of intra-uterine poliomyelitis that had been reported. In various discussions on clubfoot the subject of intra-uterine poliomyelitis had been pretty effectually disposed of. He agreed with Dr. Elliott that the dislocation in this case was not a true congenital dislocation of the hip.

Dr. Joseph Collins said that, judging from the report, he would not be satisfied to admit that the case was one of infantile poliomyelitis, because nothing had been said regarding the changes in the substance of the cell as evidence that these cells had undergone the parenchymatous changes which cells do suffer in poliomyelitis of every kind. He understood that the reason these changes had not been described was because the specimens had not been properly hardened for the Nissl stain. This was a great obstacle to the acceptance of the statement that the lesions were dependent upon a poliomyelitis. In poliomyelitis of every kind the external contour of the cord does not change, yet in the case reported shrinkage of the cord was prominent. Again, the cells were reported to be quite scarce, but the cells themselves were not materially disintegrated as should have been demonstrable in specimens so prepared. He found it impossible to imagine that this perceptible decrease of cells in size and shape in the motor region was purely secondary to the smallness of the cells in the cervical and lumbar regions. The changes in the muscles seemed to indicate very distinctly that they were secondary to central changes.

Dr. B. Onuf closed the discussion. He said that he thought that even if the anterior spinal artery had been badly developed it would not explain why the changes observed were so much more marked in some regions than in others. The intramuscular nerve bundles appeared degenerated. If there had been a developmental defect in the spinal cord one would look for absence of certain nerves and expect the rest to appear normal. In his opinion, the changes found in this case were fairly typical of poliomyelitis. The number of the cells appeared, on the whole, to be diminished. If this were a case of intra-uterine poliomyelitis it was probable that comparatively few lesions would be found so long afterward as evidence of the process that had taken place. The changes of contour were probably explicable also on the ground that the process had lasted long. The distribution of the cell changes was far from being uniform. He saw no reason why the cortical changes should not be looked upon as secondary in view of the fact that the process must have occurred very early in life. In cases of congenital porencephalus of the right occipital lobe marked atrophy of the optic nerve had been observed and reported. In a case of this kind it was not right to draw conclusions from one or two points, but only after a careful study of the whole picture.

The Finer Microscopical Structure of the Cortical Areas in Man and Some Animals.—Dr. M. G. Schlapp made some remarks on this subject. He said that he had been struck with the great differences in the descriptions of the cortex as given by different writers. The earlier authors described five or six layers in the occipital lobe, whereas more modern writers described eight or even nine layers. These discrepancies he would explain by the fact that different animals had been used for their observations. The higher one goes in the animal kingdom the more the philogenetic secondary center tends to replace the philogenetic primary center. The secondary center does not control all movement, however. Plates were exhibited to show the differences in different animals. The motor area is not developed in the lower animals, so that it can not be distinguished from the rest of the cerebrum, but such an area can be observed in the dog and monkey. In the dog it is very near the frontal pole, whereas in the monkey it is much further back. In the monkey is found an eight-layer structure. The cortical sight center is very much developed in the monkey and in man. These differences in structure were demonstrated under the microscope. The granule cells are

characteristic of a highly-developed cortex. Most of these cells have ascending axons or very short axons. They are the cells which receive the impulses. These cells are very much more developed in the sensory than in the motor areas. In the sight center is found the eight-layer type. The auditory center can be recognized, but is not so sharply distinguished as is the sight center.

BOOK REVIEWS.

A TEXT-BOOK OF BACTERIOLOGY. By GEORGE M. STERNBERG, M.D., LL.D., Surgeon-General of the United States Army. Second Revised Edition. William Wood & Company, New York.

THE preface of the book explains its present status. At the request of the publishers the author has again undertaken a revision of his Manual of Bacteriology published in 1892. This is practically a third edition of that work, although the title was changed in 1896 and it now appears as a second edition of the Text-book of Bacteriology. A number of additions have been made to the present edition, including a section on Protective Inoculation in Infectious Diseases and one on the Bacteria of Plant Diseases. In order that the size of the work might not be materially increased, descriptions of species imperfectly described or of minor importance have been omitted.

General Sternberg's well-known volume on Bacteriology needs no introduction to medical readers. The book has been for nearly ten years one of the standard works in American medical literature and an acknowledged authority on its subject all over the world. The present edition, with its magnificent colored plates and handsome illustrations, and the thoroughly up-to-date revision of the text, worthily maintains the reputation of the book and of its author. The new chapters in the book are especially complete and satisfactory. Dr. Sternberg's admirable chapter on Susceptibility and Immunity is now fully supplemented by the article on protective inoculation. The treatment of this subject from the historical, scientific, experimental and the practical sides leaves nothing to be desired. The very full treatment accorded recent work in protective inoculations for cholera and plague as well as many of the infectious diseases in animals gives an excellent idea of this very important and very promising field of bacteriological work.

The section on the Saprophytes with its articles on bacteria in the air, in water, in the soil, on the surface of the body and the exposed mucous membranes, of the stomach and the intestines, of cadavers and putrefying material from various sources, and in articles of food are of special interest because of their significance for sanitation. This part of the book is worthy of careful reading by every general practitioner because it gives the latest ideas on these all-important every-day features of life in health and disease.

The chapter on the Bacteria of Plant Diseases introduced into the present volume is of interest mainly from a purely bacteriological or scientific standpoint, but it indicates the significance that comparative pathology has for medical men even when the subjects of disease are of the lowest order of living things.

A MANUAL OF MEDICINE. Edited by W. H. ALLCHIN, M.D., Senior Physician and Lecturer on Clinical Medicine, Westminster Hospital, London. Vol. III. Diseases of the Nervous System. The MacMillan Company, New York.

THIS third volume of Dr. Allchin's Manual of Medicine not only maintains the high reputation of the series of manuals, but enhances it to a notable degree. Than nervous diseases there is perhaps no subject in which it is more difficult to do the compression necessary for a brief text-book and yet uphold the interest of the subject and keep the treatment of it from being too technical. In the present work the ideal has been kept well in view and approached, it would seem, almost as nearly as is possible.

The chapter on The Neuron in Its Relation to Diseases of the Nervous System, with its thorough discussion of the application of recent discoveries in minute nervous anatomy to cerebral and spinal-cord affections, is especially interesting and commendable.

The chapters on Diseases of the Spinal Cord are followed by an excellent table for the localization of lesions of the cord and its afferent and efferent nerves.

The chapters on Functional Diseases of the Nervous System, with their wealth of suggestion for the general practitioner, are very complete yet very concise and direct. Cortical fits and infantile convulsions are given consideration here, though it is usual to think of at least the first of these spasmodic affections as having some organic basis.

Considering its importance as compared to other occupation neuroses, it would seem that too much attention is given to writer's cramp and too little to the many affections that follow any habitual motion in an occupation if done to excess or under unfavorable mechanical conditions. The other occupation neuroses do not so often prove disabling, but they are a source of much pain and discomfort whose real cause is often ignored while treatment is falsely directed to the relief of the symptomatic discomfort.

The book is very takingly gotten up and is of a size and weight calculated not to discourage frequent and prolonged consultation. It is to be hoped that this series will inaugurate a movement that will provide lighter and more convenient text-books than the cumbrous tomes now all too common.

THE READY REFERENCE HAND-BOOK OF DISEASES OF THE SKIN. By GEORGE THOMAS JACKSON, M.D. (Col.), Chief of Clinic and Instructor in Dermatology, College of Physi-

cians and Surgeons, New York; Consulting Dermatologist to the Presbyterian Hospital, New York, etc. Fourth Edition. Lea Brothers & Co., New York and Philadelphia.

A PRACTICAL TREATISE ON DISEASES OF THE SKIN. By JOHN V. SHOEMAKER, M.D., LL.D., Professor of Skin and Venereal Diseases in the Medico-Chirurgical Hospital and College of Philadelphia; Physician to the Philadelphia Hospital for Diseases of the Skin, etc. Fourth Edition. D. Appleton and Company, New York.

THESE two books have each passed through four editions and are also alike in having attained to more than a passing popularity. The specialty they treat of is one of such importance to the general practitioner that the demand for reliable hand-books on dermatology is great, and either one of the volumes under consideration has well deserved its success and is adapted for practical every-day use.

Dr. Jackson arranges his diseases alphabetically, a plan that greatly facilitates reference and in the present state of knowledge is as satisfactory as attempts at pathological classification. Conciseness and system are the most prominent features of the book, which is most commendably free from unnecessary matter, while the important subjects of diagnosis and treatment always receive adequate consideration. The volume is truly a *multum in parvo* and gives an encyclopedic amount of information in compact and practical form. A useful feature is the incorporation of a large number of foreign titles, and the illustrations are abundant and satisfactory. This edition differs from its predecessor mainly in the addition of sections on some unusual lesions and the omission of pronunciations, both changes that are to be commended and increase its value.

The second volume is a much larger and more detailed work, while Dr. Shoemaker's eminence as a teacher of materia medica and therapeutics gives more than usual interest to the sections on treatment. These are never disappointing and evidently represent the fruit of wide clinical observation aided by an intimate knowledge of the remedial resources at our command. As in his other works, the author's personality stands out strongly from his pages and lends a tone and color that makes their perusal pleasant as well as instructive. A particularly interesting chapter is the one on the general considerations of dermal anatomy and physiology, with the principles of diagnosis and treatment, which admirably prefaces the study of the separate lesions in detail.

TRANSACTIONS OF THE TWENTY-SECOND ANNUAL MEETING OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION, held in Washington, D. C., May 1, 2 and 3, 1900. New York, Carey Printing Co., 1901.

THIS is a cloth-bound volume of 235 pages, of good "make up," being uniform with its predecessors. Twenty-five papers are discussed. Those of greatest interest relate to methods of dealing with deflected septum and diseased middle turbinates. Atrophic rhinitis comes up again for consideration, as it ever will—like consumption—until a cause and a cure are found. The papers are of more than average merit; but the value of the book lies in what it is—the transactions of the Association.

SAUNDERS' QUESTION-COMPENDS. ESSENTIALS OF REFRACTION AND OF DISEASES OF THE EYES. By EDWARD JACKSON, A.M., M.D. Third Edition. W. B. Saunders & Co., Philadelphia and London.

THIS third edition of the author's "Question-Compend" is improved in the closing chapters by the addition of new matter on "Injuries of the Eye by Traumatism," "The Ocular Symptoms and Lesions of General Diseases" and "Tests and Requirements of Vision for Schools, Railroads and Public Services." The question-and-answer form of the teaching has its merits and demerits. When due allowance is made for the latter, there is no doubt of the great gain in vividness and directness of information conveyed in this manner and the ease of acquiring it. The more concise, the more difficult. Hence the greater care and skill required to state well both question and answer. The author succeeds in the main, seldom falling into irrelevancy, and then only in a minor degree, as in the answer to "What is Rupture of the Sclera?" Criticism is gratuitous of work so well done as that which this book presents. It well fills the place for which it is designed.

THE PRINCIPLES OF HYGIENE: A Practical Manual for Students, Physicians, and Health Officers. By D. H. BERGEY, A.M., M.D., First Assistant, Laboratory of Hygiene, University of Pennsylvania. W. B. Saunders & Company, Philadelphia and London.

ONE of the best indications of the trend of modern medicine towards hygiene and the prophylaxis of disease is the number of text-books on the subject of hygiene that are finding publishers. Dr. Bergey's volume of about 500 pages is not meant to take the place of the longer and more ambitious text-books on this subject, but, as stated in the preface, is meant as a manual for students of medicine, for students of architecture, and for physicians and health officers who require a compact statement of the practical principles of hygiene as they have come to be recognized in recent years.

The chapters on Ventilation and Heating are especially practical and are very suggestive for persons who do not wish to enter too deeply into these subjects. The chapters on Water and Sewage Analysis are very succinct, yet reasonably complete presentations of a difficult and complex subject. About 70 pages are taken up with the quarantine laws of the United States, inter-state quarantine regulations and Pennsylvania quarantine regulations. The necessity for

printing these regulations *in extenso* is not quite manifest. A digest of the laws and regulations would have served the purpose of the manual very well and would have made the book more practically valuable by allowing the author to devote more space to certain portions that are of special importance. Apart from this the book is an excellent compendium. Its quality as a manual of hygiene rather than a text-book should perhaps have been hinted in the title. For the limited use for which it was intended the volume will doubtless prove popular, for it bears marks of having been written by one who knows from years of teaching the practical difficulties of his subject.

SIXTH INTERNATIONAL OTOLOGICAL CONGRESS. Transactions. Edited by E. CRESWELL BABER. The Southern Publishing Co., Limited, London.

THIS volume of transactions, consisting of 477 pages, may be said to represent the latest views up to the date of the Congress held by the world's representative otologists on the important subjects considered. Unquestionably the greatest interest of the Congress centred around the subject of the mastoid operation in chronic middle-ear suppuration. Views most widely differing are presented; but the current of opinion sets steadily in the direction of the leadership of Prof. MacEwen in his advocacy of operative interference. As was to be expected, a conservative force of great strength and good judgment, occupied an intermediate position between the extremes of operative and *laissez faire* treatment. Thirteen nationalities are represented in the contributions. These transactions are so valuable that we should judge them worthy of something better than their present paper binding.

NERVOUS AND MENTAL DISEASES. By ARCHIBALD CHURCH, M.D., Professor of Nervous and Mental Diseases and Head of Neurological Department, Northwestern University Medical School; and FREDERICK PETERSON, M.D., Chief of Clinic, Department of Nervous and Mental Diseases, and Clinical Lecturer on Psychiatry, College of Physicians and Surgeons, New York. Third Edition. W. B. Saunders & Co.: Philadelphia and London.

Two editions of this work have been exhausted in as many years. This is perhaps the best possible sign that the work, though bearing signs of compression, is written in a manner that makes it especially useful to the general practitioner. There is no doubt that considerable of its popularity is due to the fact that it furnishes in a single volume thoroughly practical treatises on the two important subjects that are at the present moment attracting ever more and more attention—neurology and psychiatry.

In the preface to the third edition the authors state that a conscientious attempt has been made to thoroughly revise every portion of the work, both by additions to its subject matter and by rearrangement, wherever necessary to make it more acceptable to the student and practitioner. Such changes especially have been made as actual use of the book in class work has suggested. A number of new illustrations have been added and a number of sections entirely rewritten. There is about the book a very commendable air of easy simplicity that invites attention to subjects often made forbidding. The work is written so entirely from a clinical rather than a theoretical standpoint that its popularity is not difficult to understand. The illustrations are well chosen and add greatly to the value of the text. The therapeutic hints are always as full as is possible in the rather unsatisfactory treatment of nervous and mental diseases and on the whole the book is a thoroughly practical presentation in simple form of difficult subjects.

A TREATISE ON MEDICAL JURISPRUDENCE. Based on Lectures delivered at University College, London. By GEORGE VIVIAN POORE, M.D. (Lond.), F.R.C.P., Professor of the Principles and Practice of Medicine, University College, London. Longmans, Green & Co.: New York.

THIS book is intended to place the ordinary practitioner of medicine and of law in possession of the facts which occupy the middle ground between these two professions, a knowledge of which is essential. They were taken as a series of lectures delivered at the University College, London, and preserve the easy colloquial style of such discourses.

After a brief and interesting historical introduction, the author takes up in a very fascinating chapter, The Legal Relations of the Medical Profession. This chapter can be read to advantage by every practitioner. Following are chapters on Death, Putrefaction, Persons Found Dead, Poisoning, Symptoms of Poisoning, corrosive acids, caustic alkalies, phosphorus, arsenic, antimony, mercury, zinc, copper and lead, Vegetable and Animal Irritants, Food Poisoning, Narcotic Poisons including most of the poisonous alkaloids, Identity, Sex-Sterility, Rape, Sexual Crimes, Seminal and Blood Stains, Pregnancy and Abortion, Wounds, Drowning, Hanging, Fire, Starvation, Life Assurance and Insanity.

Thus the material covered is that usually found in similar manuals. Although the form is not as attractive as many, yet the work is well worth having.

BOOKS RECEIVED.

The MEDICAL NEWS *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MEDICAL NEWS *will shortly appear.*

ANATOMY, DESCRIPTIVE AND SURGICAL. By Dr. HENRY GRAY. Edited by T. PICKERING PICK and ROBERT HOWDEN. Revised American Edition, from the Fifteenth English Edition. Lea Brothers & Co., New York and Philadelphia.

A TREATISE ON SURGERY BY AMERICAN AUTHORS. Edited by Dr. ROSWELL PARK. Third Edition. 8vo, 1,350 pages. Illustrated. Lea Brothers & Co., New York and Philadelphia.